CERCLIS NO. TXD980626071

PRELIMINARY ASSESSMENT
FOR
Consolidated Casting Corporation
Dallas, Dallas County, Texas
(TXD980626071)

September 27, 1995

Prepared for:

J. Chris Petersen
Deputy Project Officer
Response and Prevention Branch
EPA - Region 6

Contract Number: 68-WO-0037

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MEMORANDUM

TO:	J. Chris Petersen, DPO EPA Region 6 Response and Prevention Branch
THRU:	Chris Quina, TATL Region 6 Technical Assistance Team
FROM:	Lana Ocker, Site Manager LO Region 6 Technical Assistance Team
DATE:	September 27, 1995
REF:	Contract Number 68-WO-0037 TDD #T06-9503-902 PAN: E06Z225SAL
SUBJECT:	Preliminary Assessment Consolidated Casting Corporation, Dallas, Dallas County, Texas CERCLIS #TXD980626071 Geographical Coordinates 32° 46' 30.0" N and 096° 48' 30.0" W

Attached is the Preliminary Assessment of Consolidated Casting Corporation (TXD980626071) in Dallas, Dallas County, Texas.

Reviewed 6SF-RA
12-6-95 B. Cavallaro

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1.0 INTRODUCTION

The Region 6 Technical Assistance Team (TAT) contractor, Ecology and Environment, Inc., (E & E) was tasked by the U. S. Environmental Protection Agency (EPA) under Contract Number 68-WO-0037 to conduct the Preliminary Assessment (PA) of Consolidated Casting Corporation (TXD980626071), in Dallas, Dallas County, Texas.

1.1 PRELIMINARY ASSESSMENT OBJECTIVES

The purpose of a PA is to determine whether further investigations are warranted and to screen sites for further consideration under CERCLA.

The PA investigation determines CERCLA eligibility, reviews file information, documents the presence and type, or absence, of area receptors and uncontained or uncontrolled hazardous substances on-site and off-site, and documents site characteristics. Information obtained during the PA supports the management decision of whether the site warrants immediate removal action, proceeds to a site inspection (SI) or receives the classification of No Further Remedial Action Planned (NFRAP) under the Superfund Amendments and Reauthorization Act (SARA).

2.0 SITE DESCRIPTION AND OPERATIONAL HISTORY

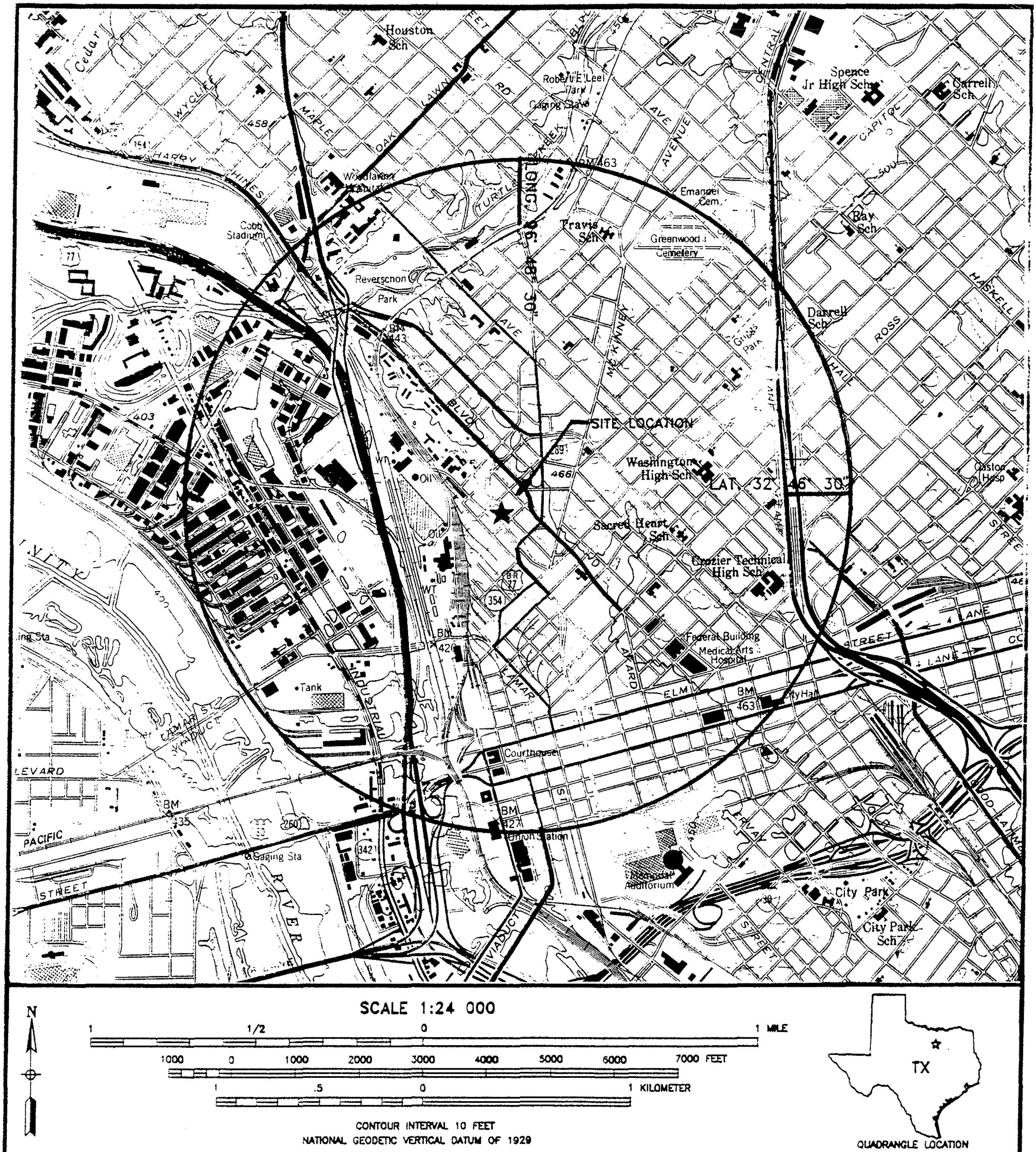
This section addresses operational history, waste containment, hazardous substance identification, and regulatory status of the facility.

2.1 SITE LOCATION

The former Consolidated Casting Corporation, Inc. facility was located at 2425 Caroline Street, Dallas, Texas (Ref. 2). The site coordinates are 32°46'30" north latitude and 96°48'30" west longitude as determined by the EPA (Ref. 2) (Figure 1). The site is located in a commercial and multi-family residential area of Dallas (Ref. 1). The active Consolidated Casting Corp. facility is now located in Hutchins, Texas, and will not be evaluated.

The site consists of approximately 37,000 to 38,000 square feet, within a vacant lot. The property is bounded by Caroline Street on the east, Ashland St. on the south, Field St. on the west, and Wichita St. on the north (Ref. 1) (Figure 2).

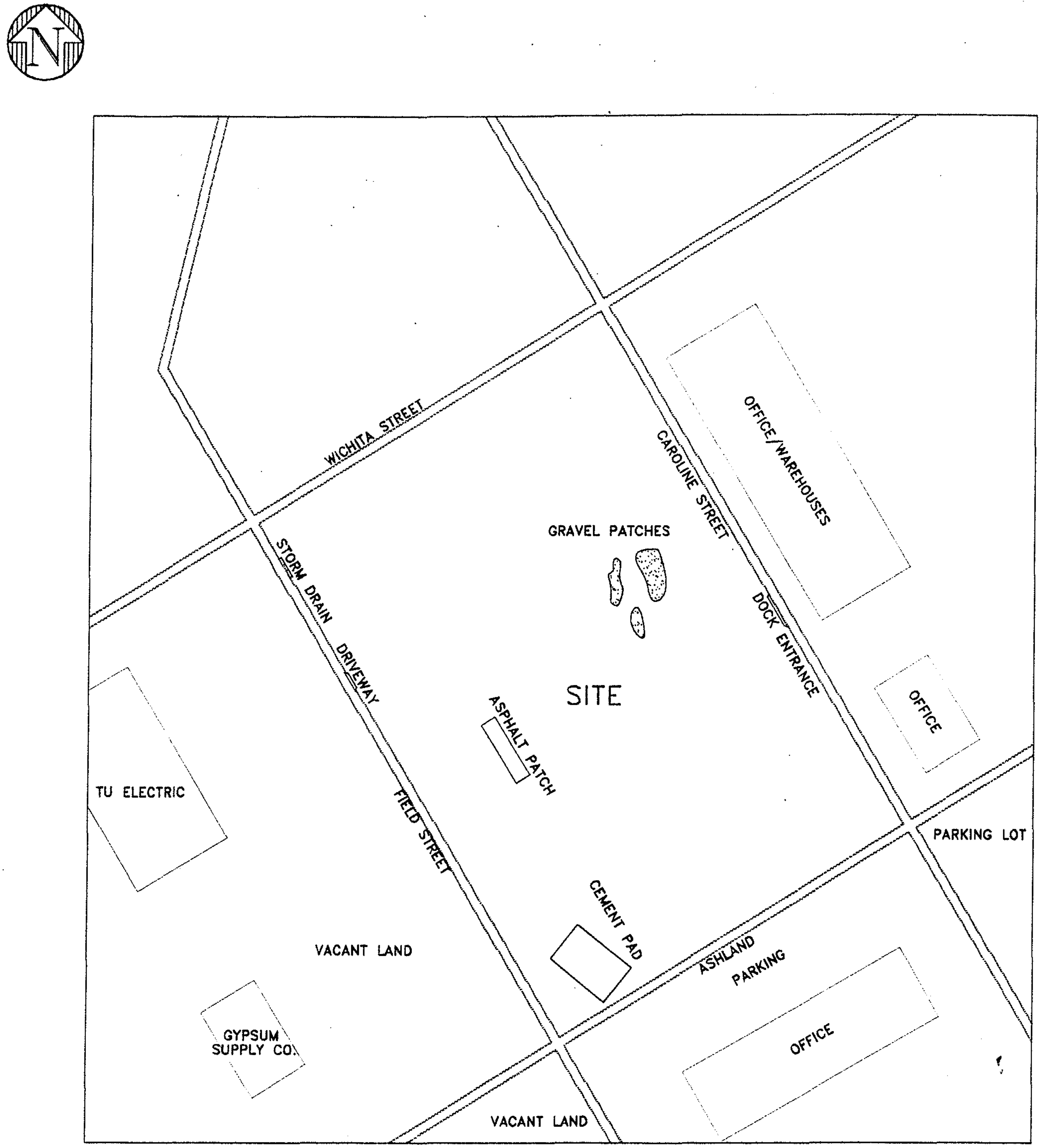
According to the Environmental Justice (EJ) report for the site coordinates, the percentage of minorities within a 1 square mile study area is 69.4 % and the percentage of economically stressed individuals is 31.1 %. For the 1 square mile study area, a potential Environmental Justice Index factor of 24 is assigned (Appendix A). The percentage of minorities located within a 50 square mile study area is 74 % and the percentage of economically stressed individuals is 40.5%.



ecology and environment, inc. Technical Assistance Team Region 6	CERCLIS/CASE#: TXD980626071	TDD# T06-9503-902
	SOURCE: U.S.G.S 7.5 MIN. TOPOGRAPHIC QUADRANGLES Dallas Quad Photorevised 1981	

FIGURE 1
SITE LOCATION MAP

Z225-B.DWG



NOT TO SCALE

ecology and environment, inc.
Dallas, Texas
International Specialists in the Environment

SITE SKETCH – FIGURE 2 CONSOLIDATED CASTING CORP.	
TDD# T06-9503-902	Date: JULY 24, 1995
PAN# E06Z225SAL	P.M.: LANA OCKER

The 50 square mile study area received a potential Environmental Justice Index factor of 36 (Appendix A). Environmental Justice Indices are indicators of potential EJ concern.

2.2 OPERATIONAL HISTORY

Consolidated Casting Corporation operated a precision casting, also called investment casting, facility at 2425 Caroline St. in Dallas, from November 1, 1967 until October 26, 1987, when the facility was relocated to Hutchins, Texas (Ref. 3; Ref. 4). Through 1987, Consolidated Casting manufactured precision investment castings with steel, brass, bronze, and aluminum alloys to include some cobalt and nickel base casting (Ref. 5). Precision casting is also known as the lost wax process where patterns of wax or other expendable material are mounted on expendable sprues, and the assembly is invested or surrounded by refractory slurry which sets and hardens at room temperature. The mold is then heated to melt and burn out the wax or other expendable material, following which molten metal is cast into the mold cavity (Ref. 33, p. 1387). Waste materials generated, documented in 1984, were sodium hydroxide, which was used in cleaning the investment casting of ceramic scrap, and hydrochloric acid (HCL), which was used in cleaning waxed patterns (Ref. 6). Hydrochloric acid was later determined to be a product within the elementary neutralization unit and not a waste. The HCL was used to neutralize the sodium hydroxide prior to disposal in the City of Dallas sanitary sewage system. Ceramic material and sodium hydroxide waste was placed into 55-gallon drums as a wet sludge and allowed to evaporate, leaving a hard, dry sludge material. The drums were then capped and removed to the drum storage area (Ref. 11).

Consolidated Casting officials stated that the site was sold in January 1984 to Heinline Investments, a company in the Netherlands (Ref. 7). There is no documentation available regarding site activities from this time until November 1993, when the property was sold to Dallas General Life Insurance. Representatives from Dallas General Life stated that the site was a vacant lot similar to that at the time of the PA inspection when it was purchased, and was being used as a parking lot and storage yard for a construction company (Ref. 1).

2.3 RPB/REMOVAL CONSIDERATIONS

No Response and Prevention Branch (RPB) removal actions have occurred on-site. An on-site reconnaissance inspection was conducted of the site by E & E on May 26, 1995 in conjunction with the completion of a PA. During the on-site reconnaissance inspection, no actual or potential exposure to nearby humans, animals, or food chain organisms from hazardous substances, pollutants, or contaminants was noted (Ref. 1). No conditions which could potentially cause an explosion or fire were observed during the inspection (Ref. 1). During the TAT on-site inspection, no conditions that would warrant imminent and substantial endangerment to human health or the environment were observed (Appendix B).

2.4 REGULATORY STATUS/ACTIVITIES

The Consolidated Casting facility was registered with the Texas Water Commission (TWC), now the Texas Natural Resource Conservation Commission (TNRCC), Industrial Solid Waste System, Registration No. 30395. This registration was initially submitted in 1976 and was last updated in 1987. The registration indicates that the site on Caroline St. was inactive

(Ref. 32). The TWC indicated in an Affidavit of Exclusion from Hazardous Waste Permitting Requirement, dated February 21, 1986, that the Consolidated Casting facility, "did not store, process, or dispose, on-site any hazardous waste in such a manner as to require a hazardous waste permit". The facility stored sodium hydroxide residues in drums on a less than 90 day storage basis, which qualified for the "Accumulation Time" storage exclusion of the Texas Administrative Code, Section 335.69. Other material (hydrochloric acid and spent sodium hydroxide solution) was neutralized through a controlled mixture in an elementary neutralization unit which qualified for the "Elementary Neutralization Unit" exclusion of the Texas Administrative Code, Section 335.2(f) (Ref. 8; Ref. 9). Consolidated Casting had also filed a Part A Permit Application, as required by RCRA. The application for a hazardous waste permit was withdrawn by the TWC on August 29, 1986, based on a review of the EPA Part A and the Affidavit of Exclusion (Ref. 8; Ref. 9) (Ref. 10).

The site was discovered and entered on the CERCLIS by a Potential Hazardous Waste Site Identification on April 12, 1990. The site was designated by EPA RCRA as an Environmental Priorities Initiative site (Ref. 2).

2.5 SOURCE EVALUATION AND HAZARDOUS SUBSTANCE IDENTIFICATION

At the time of the PA site inspection, all buildings, drums and the elementary neutralization unit, had been removed from the site. There were three small concrete and gravel piles, one small concrete pad, and an asphalt patch. The site was vegetated and no visual evidence of hazardous substances was observed (Figure 2)(Ref. 1). In 1993 and 1994, surface soil (depths less than 2 feet) samples were collected from the site at the request of the new owners, Dallas General Life Insurance Co., and analyzed for pH, cadmium, chromium, copper, lead, nickel, and zinc. Laboratory analysis determined that one sample had elevated concentrations of lead. No background sample was collected. For evaluation purposes, contaminated soil will be considered as the only source (Ref. 12). The waste quantity will be evaluated as 38,000 square feet, which is the size of the entire site.

3.0 PATHWAY ASSESSMENT

This section characterizes the environmental pathways and associated targets of contaminant migration from the facility.

3.1 GROUND WATER PATHWAY

3.1.1 Ground Water Characteristics

Three aquifers are available for ground water development in the site vicinity. The aquifers are the Woodbine Formation of the Gulf Series, and the Paluxy and Twin Mountains Formations of the Trinity Group, which is part of the older Comanche Series (Ref. 13, p. 11, Figure 37). Intervening layers of shale, limestone, chalk, and marl, which produce limited amounts of water, usually in localized areas, separate the aquifers and act as aquitards. The stratigraphy underlying the site, in descending order, is made up of Alluvium, the Austin, Eagle Ford, Woodbine, Washita, Fredricksburg, and the Trinity Groups (Ref. 13, p. 11).

The site is located on portions of the Trinity River alluvium (Ref. 13, Figure 16). The alluvial flood plain deposits consist of gravel, sand, silt, silty clay and organic matter (Ref. 14).

The Woodbine, the only important aquifer of the Gulf Series, extends in a south-north direction that then trends to the east, parallel to the Red River. The Woodbine dips eastward, where it reaches a maximum thickness of approximately 700 feet and a maximum depth of 2,500 feet below land surface. Ground water movement flows in an east-southeast direction, generally paralleling the dip of the beds (Ref. 13, p. 46). The northern segment is generally divided into lower, middle, and upper parts, with the upper part being composed of fine grained, well sorted, reddish-brown sandstone with concretions and shale present; the middle part being composed of reddish sandstone with interbedded gray to brown clay and shale; and the lower part being composed of interbedded, red-brown to white sandstone with ironstone and sandy gray to brown clay. In the northern segment, only the lower part is suitable for water supply development (Ref. 13, pp. 14-15; Ref. 15, pp. 62, 67).

The Comanche Series, a stratigraphically older unit, underlies the Gulf Series. The Comanche Series consists of the Washita, Fredricksburg and Trinity Groups. The Trinity is the principal water bearing unit of this series and is divided into the Paluxy, Glen Rose, and Twin Mountains Formation (Ref. 13, p. 11). Only the Paluxy and the Twin Mountains are considered water-bearing. The Glen Rose does not provide water (Ref. 13, p. 11).

The Paluxy Formation yields fresh to slightly saline water in north central Texas. The Paluxy is composed predominantly of fine-to coarse-grained, friable, homogenous, white quartz sand interbedded with sandy, silty, calcareous, or waxy clay and shale. In general, coarse-grained sand is in the lower part. The Paluxy grades upward into fine-grained sand with variable amounts of shale and clay. The thickness of the Paluxy varies considerably throughout the area, having a maximum thickness of approximately 400 feet in the counties north of the site, and a minimum thickness of less than 100 feet south of the site. Water wells tapping the Paluxy yield small to moderate quantities of fresh to slightly saline water (Ref. 13, p. 14).

The Twin Mountains Formation is the most prolific of the Cretaceous aquifers in the north Texas area, and consists of medium-to coarse-grained sands, red and gray silty clays, and siliceous conglomerates of chert, quartzite, and quartz pebbles (Ref. 13, p. 39; Ref. 14). The basal conglomerate of chert and quartz grade up to the sands interspersed with varicolored shale. The thickness of the Twin Mountains Formation increases downdip and ranges from 100 feet near the outcrop to over 400 feet to the south (Ref. 13, p. 39).

The annual net precipitation for the area as measured at the Dallas weather station is 9.77 inches (Ref. 16).

3.1.2 Ground Water Receptors

Ground water is no longer used as the drinking water supply for the City of Dallas. Fifty-eight water wells were identified within 4 miles of the site. With the exception of 18 wells which were identified as industrial wells, all have been abandoned or listed as inactive (Ref. 17, pp. 43-47, 51-52, 75, and 77). There is no documentation that ground water is used for commercial agriculture, aquaculture, or as an ingredient in commercial food production within the 4-mile target radius. No ground water targets were identified.

A designated Wellhead Protection Area has not been established for the site or the site area (Ref. 18).

3.2 SURFACE WATER PATHWAY

3.2.1 Surface Water Characteristics

There was no definitive surface drainage pathway from the site. It is assumed, from the site topography, that runoff will drain into a storm water inlet, located at the intersection of Wichita and Field Streets (Ref. 1). This runoff is channeled through an engineered drainage ditch to the Able Pump Station which is located at the Jefferson Blvd. Viaduct, approximately 1.9 miles away (Refs. 19; 20). The drainage pathway from the site to the pump station will be considered to be intermittent and will be evaluated as the overland flow segment. The point at the Able Pump station where the water is pumped into the Trinity River will be evaluated as the Probable Point of Entry (PPE) (Ref. 20). From the PPE the 15-mile downstream segment is within the Trinity River (Ref. 20).

The Trinity River basin discharged an average of 596 cubic feet of water per second (CFS) during the reporting year of 1988. Specific gaging information taken from the Cedar Crest Blvd. bridge, 1.8 mile southeast of Dallas City Hall, and downstream of the site, indicates that the river had a maximum discharge of 2,240 CFS on May 21, 1988 and a minimum discharge of 390 CFS on November 13, 1987 (Ref. 21, p. 327).

Site specific soil maps were not available because the site is located in areas of extensive urban development where 75 percent or more of the surface is covered with buildings and pavement. Soils in these areas have been altered or covered during development; therefore it was not feasible to separate them in mapping (Ref. 23, p. 36). The general soils for the site vicinity consist of the Trinity-Frio soils. These soils are deep, nearly level, clayey soils located on floodplains. The soils are alkaline and somewhat poorly drained to well drained (Ref. 23, p. 5).

The two-year, 24 hour rainfall is approximately 4.5 inches (Ref. 24). Because of the relatively flat topography and the concrete gutters in the streets surrounding the site, the upgradient drainage is also the area of the site, which is approximately 38,000 square feet, less than 1 acre (Ref. 1).

The site is located outside of the 500 year floodplain (Ref. 25).

A release of hazardous substances to the surface water pathway is not suspected based on the lack of evidence of off-site migration and the relative immobility of contaminants found at the site. Attribution of hazardous substances found on-site to a release in the surface water pathway would be very difficult to document as much of the industrial area of the site vicinity drains to the Trinity River.

3.2.2 Surface Water Receptors

The City of Dallas uses surface water for all municipal drinking water supplies. Water is taken from Lake Tawakoni, Lake Grapevine, Lake Lewisville, Lake Ray Hubbard, and Lake Ray Roberts, which are all located outside the 15 mile downstream, in-water segment of the target distance limit (TDL). The downtown area is supplied with water from Lake Tawakoni and Ray Hubbard which is treated at the East Side Water Treatment Plant (Ref. 26).

There is one known water intake or water right located within the 15-mile downstream limit. This intake draws water from the west bank of the Trinity River north of Loop 12, approximately eight miles from the site (Ref. 20; Ref. 27). This water is used to maintain water level in ponds located on a golf course and for watering the greens. The intake consist of pumps and is not a permanent structure. There are no permitted drinking water intakes within the 15-mile, in-water target distance limit (Ref. 27). A fishing advisory has been posted from an area upgradient of the site, to 13 miles downstream of the PPE (Ref. 22, p. 316).

The Trinity River is designated for contact recreation and high quality aquatic habitat (Ref. 22, p. 316), however, the Texas Department of Health has established a fishing closure in a portion of the river (the Elm Fork, upgradient of the site, to Interstate Highway 20, 13 miles downstream) due to chlordane contamination in fish tissue. Also, cadmium and lead levels above the TNRCC water quality standards have been detected in water samples collected from this area of the Trinity River. Elevated fecal coliform densities prevent attainment of the contact recreational use. Stream flow in the segment is dominated by treated domestic wastewater discharged throughout the Fort Worth-Dallas Metropolitan area (Ref. 22, p. 316).

Several small isolated wetlands were identified within the Trinity River Floodway, these are not contiguous to the river and will not be evaluated in the surface water pathway (Ref. 28). Documentation is not available regarding endangered species within the 15-mile downstream TDL.

3.3 GROUND WATER RELEASE TO SURFACE WATER PATHWAY

There are no surface water bodies downgradient within 1-mile of the site; therefore, the criteria for a release from ground water to surface water is not met and will not be evaluated.

3.4 SOIL EXPOSURE PATHWAY

There was no visual evidence of stained soil or distressed vegetation which would indicate spills or leaks from previous operations observed during the on-site reconnaissance conducted on May 26, 1995 (Ref. 1). Previous analytical data indicates that one sample location with an elevated concentration (1,393 milligram/kilogram or part per million) of lead is present (Ref. 12). This sample was collected on November 23, 1993 (Ref. 12).

3.4.1 Resident Threat Receptors

The site is currently inactive and consists of a vacant lot. There are no residences, schools, daycare centers, or workers located on or within 200 feet of the site. No commercial agriculture, silviculture or livestock production or grazing occurs on the site. Because the site was previously developed and is located in an urbanized area, it is assumed that there are no terrestrial sensitive environments on-site (Ref. 1).

3.4.2 Nearby Threat Receptors

The site is not fenced and access is not restricted (Ref. 1). There are no schools located within ½ mile of the site (Ref. 20). There was no evidence that the site is used for any recreational activities.

The population residing with the one-mile travel distance was obtained from the U.S. EPA Graphical Exposure Modeling System (GEMS) database, obtained from U.S. Census Bureau information. The populations within the target distance limit are 1,682 within the 0 to 1/4 mile radius; 395 within the 1/4 to 1/2 mile radius; and 1,062 within the 1/2 to one mile radius (Ref. 29).

3.5 AIR PATHWAY

3.5.1 Air Pathway Characteristics

There were no odors observed during the on-site reconnaissance inspection that would suggest a release to the air pathway. No chemicals used during previous operations at the facility were present during the site investigation (Ref. 1). The only identified hazardous substance at the site is lead which is a particulate, and only able to migrate to the air pathway through particulate migration, which is reduced by the amount of vegetation.

3.5.2 Air Receptors

The nearest regularly occupied building is located east of the site, approximately 200 feet away (Ref. 1). The population residing within 0 to ¼ mile of the site is 1,682; ¼ to ½ mile is 395; ½ to one mile is 1,062; one to two miles is 24,237; two to three miles is 81,921 and three to four miles is 100,785 (Ref. 29). Five schools were identified within the ½ to one-mile radius (Ref. 20). Thirteen schools were identified between one to two miles; 19 schools were identified within 2 to 3-miles; and, 25 schools were identified within 3 to 4-miles of the site. The student enrollment for the schools is not known. There are no wetlands located within the 1/2 mile radius of the site (Ref. 28). There are approximately 10 acres of isolated wetlands identified within four miles of the site (Ref. 28). The Texas Garter Snake, a threatened species, is known to inhabit areas within the White Rock Lake U.S.G.S. topographic map, which at a minimum, is 3.75 miles from the site (Ref. 30).

4.0 SUMMARY

At the time of the EPA TAT on-site inspection, the Consolidated Casting Corp. site is an inactive, vacant lot, located at 2425 Caroline, in Dallas, Dallas County, Texas. Consolidated casting is currently operating in Hutchins, Texas. The site is located in a commercial and residential area of Dallas. Through 1987, Consolidated Casting manufactured precision investment castings with steel, brass, bronze, and aluminum alloys to include some cobalt and nickel base casting.

The Texas Water Commission indicated in an Affidavit of Exclusion from Hazardous Waste Permitting Requirement, February 21, 1986, that the Consolidated Casting facility (Corp. Reg. No. 30395), "did not store, process, or dispose, on-site any hazardous waste in such a manner as to require a hazardous waste permit". The facility stored sodium hydroxide residues in drums on a less than 90 day storage basis, which qualified for the "Accumulation Time" storage exclusion of the Texas Administrative Code, Section 335.69. Other material (hydrochloric acid and spent sodium hydroxide solution) was neutralized through a controlled mixture in an elementary neutralization unit which qualified for the "Elementary Neutralization Unit" exclusion of the Texas Administrative Code, Section 335.2(f)

There were no CERCLA hazardous wastes observed during the on-site reconnaissance inspection that was conducted on May 26, 1995 by the EPA TAT. Previous laboratory analysis of samples collected from the site indicate elevated levels of lead were present at one sample location.

The aquifers underlying the site are the Woodbine, Paluxy, and the Twin Mountains. These aquifers are not used for drinking, or as a resource within the 4-mile target distance limit; therefore, no targets were identified or evaluated.

The overland flow from the site travels through drainage ditches approximately 1.9 miles before entering the Trinity River. A fishing advisory has been posted on the Trinity River for 13 downstream miles. One irrigation intake, but no drinking water intakes are located within the 15-mile target distance limit. Groundwater release to surface water pathway was not evaluated because the criteria for the pathway was not met.

The soil exposure pathway is a pathway of minimal concern due to the analytical data of elevated concentrations of lead and the large number of targets individuals within the 1-mile radius. There are no resident threat targets located within 200 feet of the site.

There were no odors observed during the on-site reconnaissance inspection that would suggest a release to the air pathway, however, this pathway is also a concern due to the large number of potential air targets. The site is well vegetated, which would preclude particulate migration of the known hazardous substance, lead.

The following data gaps were identified during the Preliminary Assessment of the Consolidated Casting Corp. site:

- The existence of sensitive environments and total wetland frontage within the fifteen-mile in-water segment target distance limit and wetlands within the 4-mile target distance limit;

- The enrollment of the schools within the 4-mile target distance limit, and

- No background soil sample was collected during the previous sampling event; Therefore,it cannot be determined if the HRS criteria for observed contamination has been met.

Appendix A

POTENTIAL ENVIRONMENTAL JUSTICE (EJ) INDEX PILOT

Date : 07 Jun 95 13:27:26 Wednesday
Requestor : TAT TAT
Site Id Number : TXD980626071
Site Name : CONSOLIDATED CASTING CORP
County : DALLAS
State/County FIPS Code : 48113
Location : -96 48 50   32 46 30
Quality Assurance Resource : 5

CONSOLIDATED CASTING CORP
50 square mile study area

Minority Ranking Value (DVMAV)	: 4	Percent Minority	= 74
Economic Ranking Value (DVECO)	: 3	Percent Economically Stressed	= 40.5
Population Ranking Value (PF)	: 3	Total Population	= 210731

Potential Environmental Justice Index (DVMAV * DVECO * PF) = 36

CONSOLIDATED CASTING CORP
1 square mile study area

Minority Ranking Value (DVMAV)	: 4	Percent Minority	= 69.4
Economic Ranking Value (DVECO)	: 2	Percent Economically Stressed	= 31.1
Population Ranking Value (PF)	: 3	Total Population	= 4705

Potential Environmental Justice Index (DVMAV * DVECO * PF) = 24

METHODOLOGY CRITERIA

Environmental Justice Indexes are indicators of potential EJ concern. 1990 Census data for a Study Area is evaluated and ranked in relationship to state percentages. Ranking variables are multiplied to produce an index for prioritizing applications. The ranking variables are:
Minority Status, Degree of Vulnerability (DVMAV),
Economic Status, Degree of Vulnerability (DVECO),
and Total Population, Population Factor (PF).

MINORITY STATUS (DVMAV) - For TX the percent minority is 39.4%.

ECONOMIC STATUS (DVECO) - Economically Stressed is defined as Households making less than $15,000 a year. For TX the percent economically stressed is 27.6%.

The Methodology for ranking values associated with Degrees of Vulnerability is

Ranking	Criteria
1	<= the State Percentage
2	> the State Percentage but <= 1.33 times the State %

3	> 1.33 times the State Percentage but <= 1.66 times the State %
4	> 1.66 times the State Percentage but <= 1.99 times the State %
5	>= 2 times the State %

POPULATION RANKING FACTOR
Total Population is ranked using the following criteria.

Ranking	Criteria (evaluated on a 1 square mile basis)
0	Total Population = 0
1	Total Population > 0 and < 200
2	Total Population > 200 and < 1000
3	Total Population > 1000 and < 5000
4	Total Population > 5000

Reference for Quality Assurance Resources

1	Personal Verification	7	AIRS
2	Reconciliation with Quad maps	8	PCS
3	Reported from archived files	9	GIS Verified
4	TRIS	10	Professional Judgement
5	RCRIS	11	Federal Facility Tracking System
6	CERCLIS		

Appendix B

INSTRUCTIONS

This is an initial draft of the Region 6 SACM Phase I Initial Assessment Report, or checklist, which will undergo changes in the future with your input. When requested by the SAM and OSC, the checklist will be submitted as a deliverable to the EPA after the initial site reconnaissance or PA. The checklist is not intended to limit recon activities. A logbook should still be maintained during the site visit to record observations, conversations, photolog, equipment calibration and serial numbers, etc. The logbook need not duplicate the information recorded on the checklist. Note in the logbook that some field observations made during the recon are recorded on this form and that a copy of this form is <u>retained in TAT's custody</u>.

The checklist should be filled out while on-site to record observations. At an absolute minimum, the lightly shaded portions of the form must be completed before the conclusion of the site visit. These questions are based primarily on field observations rather than file reviews or interviews. Some portions, however, may be completed before or after the site visit. Sections of the checklist include information intended for use when completing a PA score program. These questions may be completed over the phone upon return to the office (or after the SAM has requested that a PA score be calculated).

Please write legibly and complete as much of the form as possible. If the information exceeds the writing space provided, attach additional sheets or use the logbook. The checklist is organized into *Parts*:

Part 1 deals with general information about the site and its location.

Part 2 asks about site ownership/operation and regulatory history.

Part 3 is an analysis of the National Contingency Plan (NCP) criteria, or "imminent and substantial dangers to public health and welfare" and the environment.

Part 4 summarizes field sampling data collected while on-site.

Part 5 deals with CERCLA eligibility as it pertains to funding of site cleanup. It must be decided which fund will support the cleanup and which lead agencies need to be involved.

Part 6 deals with on-site characteristics, observations and source characterization. Separate Source Characterization Forms are attached to the back of the checklist to be used as needed.

Parts 7 and 8 remind TAT of items to be included on the site sketch and during photodocumentation.

Part 9 is patterned after questions on the PA Score program and evaluates specific target concerns by pathway or matrix.

Part 10 allows space to list, by number, all the references used to obtain information about the site; whether they be people, agencies, reports, etc,. At the beginning of each *Part,* there is a space where references used to answer questions in that section may be listed using this number or you may choose to list references wherever appropriate.

This form will be a deliverable to the EPA to serve as a screening tool for ERB and SAB concerns. The checklist should be submitted to the EPA shortly after the site visit. Following review of the checklist, the OSC and SAM will decide which agency may take the lead for the next phase of work and whether a PA score should be calculated. It may also become an attachment to the site assessment report-wait for further direction from EPA on this.

Comprehensive instructions for completing the checklist will be available soon. These instructions will clarify each question and suggest where and how to obtain some of the information needed to complete the checklist (i.e., HRS tables). Please feel free to give your comments to me regarding the checklist. Thanks-Eliza.

DRAFT

SACM PHASE I INITIAL ASSESSMENT REPORT PART I - SITE LOCATION AND ASSESSMENT INFORMATION	CERCLIS # TXD 980626071	
	State TX	SSID L9ZZ

Site Name and Address
Consolidated Casting Corporation
2425 Caroline St.

City	State	Zip	County	County Code	Cong Dist
Dallas	TX	75201	Dallas	113	3,4

Physical Location (directions to site)

Latitude 32 ° 46 ' 30 " N Longitude 96 ° 48 ' 30 " W

Source (topo, GPS, etc.)

Point on the site at which it was calculated (geographical center, entry gate, etc.)
Method of calculation from topo

Datum

Quadrangle Name ~~SIZE (7.5' OR 15')~~ 14
Dallas Quadrangle
7.5 minute series ~~DATE~~
1958, photorevised 1981 ~~PHOTOREVISION DATE~~

Section	Township	Range
NA	NA	NA

Type of Ownership
☐ Municipal ☒ Private ☐ Federal ☐ Indian Nation ☐ State ☐ County ☐ Other ____________

Assessment Information Ref. #(s) ____________

Date	Site Status	Years of Operation
May 30, 1995	☐ Active ☒ Inactive ☐ Not Specified	☐ Unknown 1967 (Begin) / 1987 (End)

Agency Performing Inspections Ref. #(s) ____________

Primary Inspectors	Title	Organization	Telephone
Leticia Ayala	EPA - TAT	Ecology & Environment	214/220-0318
Lana Ocker	EPA - TAT	Ecology & Environment	214/220-0318
Other Inspectors			
Site Representatives Interviewed/Contacted			
Keith Koop	Forrest Realtor	Dallas General Life Insurance	214/720-1300

Access Gained By	Time	Weather
☐ Verbal Consent ☒ Written Consent ☐ Warrant	10:00 - 11:15	Clear, Warm, Sunny

Site Identified	CERCLIS Identification	EPA Contact
☒ Federal ☐ State/Local ☐ Citizen Complaint ☐ Other ______	Date 4/12/90	EPA Contact Bartolome Canellas Telephone Number 214/665-6740

PART II - SITE BACKGROUND AND REGULATORY STATUS

Owner/Operator History Ref. #(s) 1

Current Dallas General Life Insurance

Previous Consolidated Casting Corporation

SITE REGULATORY HISTORY Ref. #(s) 1

PERMITS

☐ NPDES ☑ State Permits ☐ UIC ☑ RCRA Part A ☐ RCRA Part B ☐ Local Permits ☐ Air

☐ TACB ☐ SPCC Plan ☐ Other ______

Dates and Description of Previous Investigations

Site Identification 4-12-1990

Dates and Description of Previous Removal Actions

No removal actions have been documented. The facility was decommissioned and dismantled by the former owners, Consolidated Casting Corp.

Dates and Description of Previous State or RCRA Corrective Actions

NA

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PART III - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

Potential Threat of Fire and/or Explosion

No threat of fire and/or explosion, site is a vegetated, vacant lot

i.e. Unstable hazardous materials stored on-site, reactive materials disposed of together, former military site with unexploded ordinance?

Potential Threat of Direct Contact With Hazardous Substances

No threat of potential contact observed. There is no evidence that people use the site for recreation or walk across it as a short cut.

i.e. Unrestricted public access to exposed hazardous substances, runoff carries hazardous substances to surface water bodies, hazardous substances have migrated onto residential properties, population or workers exposed or injured (date, #)?

Y/N Waste fenced/access restricted (explain) no fencing - fencing not needed

Condition of fence: ______ If fencing needed, estimate dimensions required: ______

Potential Threat of a Continuous Release of Hazardous Substances

Only source is one small area of lead-contaminated soil - this is not contained, however it is covered by vegetation - precluding particulate migration.

i.e. Sources are poorly contained possibly threatening ground water, surface impoundments with inadequate diking near a surface water body, contamination of sewers or storm drains, lack of cover to prevent air release?

Potential Threat of Drinking Water Contamination

Dallas is supplied with drinking water from Lake Ray Hubbard and Lake Tawakoni

i.e. Threatened water intakes, suspected release to ground water where private residences rely on shallow ground water for drinking, underground storage tanks near public supply wells, private well users have reported foul-smelling and or tasting water?

Removal Considerations

Possible physical removal of small area or capping with clean fill, concrete or asphalt for parking

i.e. Containerize leaking drums, fences, security, capping, stabilizing waste, physical removal, pumping lagoons, air monitoring, field screening, preliminary sampling, etc.

PART IV - SAMPLES/FIELD SCREENING INFORMATION

Field Screening

- ☐ OVA
- ☑ HNu
- ☐ XRF
- ☐ AIM
- ☐ HAZCAT
- ☐ Monitox
- ☐ Air Monitoring
- ☐ Field Test Kit
- ☐ Draeger Tube (type & tube id#)
- ☐ Other

Specify

Summary of Field Screening Results

No readings were detected above background limits

Samples Collected N/A

Sample Type	Number of Samples Taken	Samples Sent To	Estimated Date Results Available
Ground Water			
Surface Water			
Waste			
Air			
Runoff			
Spill			
Soil/Sediment			
Vegetation			
Other			

PART V - A. CERCLA ELIGIBILITY

Ref. #(s)__________

Y/N Did the facility cease operations prior to November 19, 1980? ~~yes~~ no
If yes, stop, site is CERCLA eligible. If no, proceed to Part B

B. RCRA ELIGIBILITY

Y/N Did the facility file a RCRA Part A application? If yes: yes but withdrew it
Y/N 1. Does the facility currently have interim status?
Y/N 2. Did the facility withdraw its Part A application? yes
Y/N 3. Is the facility a known or possible protective filer?
Y/N 4. Type of facility:
Generator ✓ Transporter ✓ Recycler__ Treatment/Storage/Disposal (TSD) ✓
Y/N Does the facility have a RCRA operating or post closure permit?
Y/N Is the facility a late (after 11/19/90) or non-filer that has been identified by the EPA or State?

If all answers to questions in Part B are NO, stop, the facility is CERCLA eligible. If answers to 2 or 3 are YES, stop, the facility is CERCLA eligible. If answers to 2 and 3 are NO and any other answer is YES, site is RCRA, continue to Part C.

C. RCRA SITES ELIGIBLE FOR NPL

Y/N Has the facility owner filed for bankruptcy under federal or state laws?
Y/N Has the facility lost RCRA authorization to operate or shown probable unwillingness to carry out corrective action?
Y/N Is the facility a TSD that converted to a generator, transporter or recycler after November 19, 1980?

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D. EXEMPTED SUBSTANCES

Y/N Does the release involve hazardous substances other than petroleum including crude oil or any fraction thereof? If yes, site is CERCLA eligible.

PART VI - SITE ASSESSMENT RECONNAISSANCE

☐ On-Site ☐ Windshield

a. General Site Characteristics Ref. #(s) 2

Predominant Land Uses Within 1 Mile

- ☒ Industrial
- ☒ Commercial
- ☒ Residential
- ☐ Forest/Fields
- ☐ Agriculture
- ☐ Mining
- ☐ DOD
- ☐ DOE
- ☐ DOI
- ☐ Other Federal Facility
- ☐ Other

Site Setting

- ☒ Urban
- ☐ Suburban
- ☐ Rural
- ☐ Other

Approximate Size

Acres:

or Square Feet: 38,000

Type of Site Operations (check all that apply)

- ☐ Manufacturing (must check subcategory)
  - ☐ Lumber and Wood Products
  - ☐ Inorganic Chemicals
  - ☐ Plastic and/or Rubber Products
  - ☐ Paints, Varnishes
  - ☐ Industrial Organic Chemicals
  - ☐ Agricultural Chemicals (e.g., pesticides, fertilizers)
  - ☐ Miscellaneous Chemicals Products (e.g., adhesives, explosives, ink)
  - ☐ Primary Metals
  - ☐ Metal Coating, Plating, Engraving
  - ☑ Metal Forging, Stamping - casting
  - ☐ Fabricated Structural Metal Products
  - ☐ Electronic Equipment
  - ☐ Other Manufacturing
- ☐ Mining
  - ☐ Metals
  - ☐ Coal
  - ☐ Oil and Gas
  - ☐ Non-metallic Minerals
- ☐ Retail
- ☐ Recycling
- ☐ Junk/Salvage Yard
- ☐ Municipal Landfill
- ☐ Other Landfill
- ☐ DOD
- ☐ DOE
- ☐ DOI
- ☐ Other Federal Facility
- ☐ RCRA
  - ☑ Treatment Storage, or Disposal
  - ☐ Large Quantity Generator
  - ☐ Small Quantity Generator
  - ☐ Subtitle D
    - ☐ Municipal
    - ☐ Industrial
  - ☐ "Converter"
  - ☐ "Protective Filer"
  - ☐ "Non- or Late Filer"
- ☐ Not Specified
- ☐ Other

Waste Generated

- ☑ On-site
- ☐ Off-site
- ☐ On-site and Off-site

Visible Soil Types

- ☒ Gravel
- ☐ Bedrock
- ☐ Silt
- ☒ Sand
- ☒ Clay
- ☒ Other

Possible Sandy clay fill

While in the area, if possible, contact the local soil conservation service to obtain a copy of the soil survey for the county or parish in which the site is located.

Operational History, Background, Processes, Waste Disposal, etc.

According to NOR (5/87) the following waste was generated while site was active: combustible trash, misc. iron oxide slag, WAV etching solution, ceramic scrap, iron scrap, HCl, NaOH sludge, neutralized and caustic waste.

On site waste management facilities: container storage area for NaOH sludge and neutralized/caustic wastes; tank storage/processing of HCl, neutralized/caustic wastes

b. Source Characterization

Indicate type(s) and quantity of sources on-site. Complete and attach a source characterization form (SCF) for each source and summarize the SCF on the following table (photodocument source and mark appropriate location on site sketch).

Contaminated Soil

1. Physical States (Enter all that apply by # in Column B)	2. Waste Characteristics (Enter all that apply by # in Column C)	3. Treatment (if known) (Enter all that apply by # in Column D)
1. Solid 2. Powder, fines 3. Sludge 4. Slurry 5. Liquid 6. Gas 7. Other ____	1. Toxic 2. Corrosive 3. Radioactive 4. Persistent 5. Soluble 6. Infectious 7. Flammable 8. Ignitable 9. High volatile 10. Explosive 11. Reactive 12. Incompatible 13. Not Applicable N/A	1. Incineration 2. Underground Injection 3. Chemical/Physical 4. Biological 5. Waste Oil Processing 6. Solvent Recovery 7. Other Recycling Recovery 8. Other No treatment (Specify)

A Source Type	B Enter #(s) from Box 1	C Enter #(s) from Box 2	D Enter #(s) from Box 3	E Active/ Inactive	F Estimated Quantity, Area or Volume (include units of measure)	G Description or Use Comments
Landfill						
Drums						
Surface Impoundments						
Soil	1	1	8	I	3 yards³	
Tanks/Non-Drum Containers						
Land Treatment/Landfarm						
Piles						
Fire/Burn Pits						
Other/Additional						

Overall containment of wastes (check one)

☐ Adequate (Secure) ☒ Moderate ☐ Inadequate (Poor) ☐ Insecure (Unsound, Dangerous)

Evidence of migration from source area, description of diking, liners, barriers, engineered covers, run-on or runoff control systems, etc.

No evidence of migration

Estimate the percentage of the site's surface that is

☐ Exposed soil, 2% ☐ Covered by buildings, ___ ☑ Covered by pavement, 3% ☑ Covered by vegetation, 95%
☐ Covered by water, ___

List the presence (or absence) and type of plants observed on-site. If known, estimate percentages of different vegetative types (ie. tree canopy, shrubs, grass, ground cover, weeds, etc.).

native grasses

Describe any evidence or observation of animal species while on-site.

no animals - area is located in an urban area

06:FORMS.TAT_SACM_CKLST-05/25/94-D1

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Describe any known or observed recreational uses or human presence on the site (e.g., fishing, biking, footprints, tire tracks, vandalism, etc.). (Photodocument) no observed recreation

General Types of Waste (check all that apply)

- ☑ Metals
- ☐ Organics
- ☐ Inorganics
- ☐ Solvents
- ☐ Paints/Pigments
- ☐ Laboratory/Hospital Waste
- ☐ Radioactive Waste
- ☐ Construction/Demolition Waste
- ☐ Pesticides/Herbicides
- ☐ Acids/Bases
- ☐ Oily Waste
- ☐ Municipal Waste
- ☐ Mining Waste
- ☐ Explosives
- ☒ Other metal (lead) detected by sampling was not a listed waste or part of listed wastestream of facility

Specify substances below, if known (active facilities provide manifests, analytical data available)

HAZARDOUS SUBSTANCES

Category	Substance Name	Storage/Disposal Method	Concentration (include units of measure)

PART VII - SITE SKETCH (attached)
(Include north arrow, topography, distances, buildings, drainages, sources, stained soils, fences, etc.)

PART VIII - PHOTODOCUMENTATION (labeled photos attached)
(Include panoramas, targets, sources, recreation, stressed vegetation, sampling locations, etc.).

See Attachments

PART IX - TARGETS

a. Ground Water Pathway Ref. #(s)____	Target Distance Limit (TDL) = 4 Mile Radius
Y/N During the site visit, did you field verify all ground water targets within a half mile? yes	Distance to nearest drinking water well 74 Miles ____ Feet
Y/N Is ground water used for drinking water within 4 miles? no	Depth to shallowest aquifer on-site? unknown Feet
Y/N Karst terrain present? no	Nearest designated wellhead protection area ☐ Underlies Site ☐ >0 - 4 Miles ☑ None Within 4 Miles
Y/N Is there a high likelihood of release to ground water? no	

Y/N Have likely contaminated drinking water wells been identified? If yes, enter potentially effected population #____ no

Population served by drinking water wells within the designated target distances. Note if the water supplies within that target distance radius are Private (P), Community (C) or Both (B).

Distance (miles)	Population	Type of Supply (P, C or B)
On-site	0	
0 to 1/4	0	
1/4 to 1/2	0	
1/2 to 1	0	
1 to 2	0	
2 to 3	0	
3 to 4	0	

Description of wells (including usage, blending of water system, depth, age and location).

No wells within 4 miles

Y/N Is ground water from any target well within the TDL, for the aquifer evaluated or overlying aquifers, used for the following resources: irrigation (5 acre minimum) of commercial food crops or forage crops, watering of commercial livestock, ingredient in commercial food preparation, supply for commercial aquaculture, supply for a major or designated water recreation area?

b. Surface Water Pathway Ref. #(s)____ | TDL = 15 Stream Miles

Y/N Did you verify all surface water targets within 1 stream mile during the site visit?
yes

Shortest overland distance from any source to surface water for each watershed
+50 Feet 1.9 Miles

Y/N Is there a likelihood of a release to surface water?
If yes, explain (e.g., water color, fish kills, stressed vegetation)

Site is located in
- ☑ No Floodplain
- ☐ Annual - 10 yr Floodplain
- ☐ >10 yr - 100 yr Floodplain
- ☐ >100 yr - 500 yr Floodplain
- ☐ >500 yr Floodplain

Y/N Did you observe any fishing or evidence of fishing in surface water bodies on or near the site? If yes, photodocument, specify the name of the water body and its distance from the site.

Annual Precipitation 9.77 inches

Two Year, 24-Hour Rainfall 4.5 inches

Type of surface water draining site and 15 miles downstream (check all that apply)
☐ Stream ☑ River ☐ Pond ☐ Lake
☐ Bay ☐ Ocean ☑ Other drainage ditches

Identify the surface water bodies and flow rates (cubic feet per second, cfs) along a 15 stream mile pathway for each watershed. **Identify the uses of each surface water body as**

- **DW** = Drinking water
- **F** = Fishery
- **FP** = Ingredient in commercial food preparation
- **I** = Irrigation of commercial food crops or commercial forage crops
- **L** = Watering of commercial livestock
- **N** = None of the above, specify
- **R** = Major or designated recreation area

Surface Water Body	Begin to End Distance	Stream Flow in cfs	Use(s)
drainage ditch	0 - 1.9 mile	—	— N
Trinity River	1.9 - 15	596 cfs	F R

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Y/N Any drinking water intakes located along 15 mile TDL? If yes, identify the population served by surface water intakes along the 15 stream mile pathway in the table below.	Y/N Probable Point of Entry (PPE) located and noted on site sketch? (PPE is the point where runoff from the site most likely enters surface water) - located - too far away for sketch

Surface Water Body	Distance to Intake from PPE	Population Served

Y/N/Unk Is drinking water system blended? If possible, make a note of percents of contribution to system per intake.

List all Fisheries

Water Body/Fishery Name	Flow (cfs)	On-Site or Distance from PPE	Pounds Fish/Year
Trinity River	596	4 miles	1,000-10,000

Estimated pounds per year of fish, shellfish, etc. collected from the each fishery and enter the correct range in the above table.

0 lbs	10,000 to 100,000
> 0 to 100	100,000 to 1,000,000
100 to 1,000	> 1,000,000 Specify ________
1,000 to 10,000	

Y/N Wetlands (as per the CFR definition) located along the surface water migration path?
If yes, list Wetlands

Water Body	Flow (cfs)	Frontage Miles

Y/N Other Sensitive Environments located along the surface water migration path?
If yes, list below unknown

Sensitive Environments Type	Water Body Type	Distance From PPE/On-Site?

Y/N Is surface water used for one or more of the following resources within the TDL: irrigation of commercial food crops or forage crops (≥ 5 acres), watering commercial livestock, ingredient in commercial food prep, supply for a major or designated water recreation area?

c. Soil Exposure Pathway Ref. #(s)	TDL = 1 Mile Radius
Y/N During the site visit, were targets within 500 feet field verified?	Number of residents who reside within 200 ft. of known or suspected contamination None
Y/N School or Daycare located within 200 feet of known or suspected contamination? If yes, enrollment	Number of workers on-site ☑ None ☐ 1 - 100 ☐ 101 - 1,000 ☐ >1,000
Y/N Are one of the following present in an area of observed contamination at the site: commercial agriculture, silviculture, livestock production or livestock grazing? no	

Y/N Have Terrestrial Sensitive Environments been identified on or within 200 feet of known or suspected contamination? If yes, list each Terrestrial Sensitive Environment.

d. Air Pathway Ref. #(s)	TDL = 4 Mile Radius
Y/N During the site visit, were air targets within a half mile field verified?	Distance to nearest regularly occupied building or individual (worker/resident)? 200 Feet ____ Mile
Y/N Evidence of blowing dust during site visit? Y/N Odors detected while on-site? Y/N Observed or suspected release to air? If observed, photodocument.	Enter Total Population on or within ____ On-site 1682 0 - 1/4 Mile 395 > 1/4 - 1/2 Mile 1062 > 1/2 - 1 Mile 24237 > 1 - 2 Miles 81921 > 2 - 3 Miles 100,785 > 3 - 4 Miles ____ **Total Within 4 Miles**
Predominant wind direction S	
Are there schools within the 1 mile radius? If yes, no Enrollment ____ # Employees ____	
Y/N Wetlands located within 4 miles of site?	

Estimate the total wetlands area (acres)	List All Sensitive Environments Within 1/2 Mile of the Site		Y/N Are one of the following resources present within a half mile of a source on-site: commercial agriculture, silviculture, a major or designated recreation area (including a park)?
☐ <1	Distance	Sensitive Environment Type	
☐ 1 - 50	On-site		
☐ 50 - 100	0 - 1/4 Mile		
☐ 150 - 200	>1/4-1/2 Mile		
☐ 200 - 300			
☐ 300 - 400			
☐ 400 - 500			
☐ >500 acres			

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PART X - SOURCES OF INFORMATION

Cite specific information references by number, i.e. state files, sample analysis, ROCs, reports, etc. At the beginning of each Part of this checklist, there is a space to enter the #(s) of each reference used in that Part.

Ref 1 - ROC - Leon Jackson Dallas Dept. of Water
Ref 2 - NOR - faxed over by TNRCC

Source Characterization Form

TANKS

Above-ground_____________ Active/Inactive

Underground_____________ Active/Inactive

Nondrum Containers_______________

How many of each and sizes:

Permitted/Registered (indicate per tank):

Leakage (Y/N) (indicate per tank):

Containment (adequate diking, secondary containment capacity < > capacity of tank, etc.):

Waste stream in tanks/container:

Accessibility (fenced, etc.):

Residents/schools/daycare/workers within 200 feet:

If tanks have been removed, obtain information about removal.

Comments:

Photodocument and note locations on site sketch.

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Source Characterization Form

DRUMS

Number of drums ______________________________

On Pallets (Y/N) # ______________ Leaking (Y/N) # ________________

Stained Soil (Y/N) Empty/Full/Both # ea. ________________ Explosion Hazard (Y/N)

Condition of Drums:

Containment (describe):

Maintenance (explain):

Labels (Y/N) (describe):

Accessibility (fenced, etc.):

Residents/Schools/Daycare/Workers within 200 ft (explain and indicate distances):

Comments:

Photodocument and note locations on site sketch.

Source Characterization Form

STAINED SOILS

Number of areas 1

Size*(s) 1) 3 yds³

Size*(s) 2)

Size*(s) 3)

Size*(s) 4)

Size*(s) 5)

*Size = estimate area or give dimensions

Method of measurement (pacing, metal tape measure, reference, etc.):

Is the stained soil in a drainage ditch (pathway) leading off-site? (explain):

no

Source of contamination for each stained area (indicate by number):

unknown

Sample Data: yes >1,000 ppm lead

Accessibility (fenced, etc.): not fenced

Residents/School/Daycare/Workers within 200 feet (explain): none

Comments:

Photodocument and sketch areas of stained soils on site sketch.

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Source Characterization Form

PILES

Number of piles ________________

Size* ________________________________ Type/Contents: ________________________________

Size* ________________________________ Type/Contents: ________________________________

Size* ________________________________ Type/Contents: ________________________________

*estimate area or give dimensions (note how measurements were taken i.e., pacing, tape measure, reference, etc.)

Process(es) responsible for piles:

Containment (covered, etc.):

Evidence of Migration? Via Air: ______ Via Water: ______

Describe:

Evidence of Erosion (describe):

Accessibility (fenced, etc.):

Sample Data:

Residents/schools/daycare/workers within 200 feet (explain):

Comments:

Photodocument location and sketch location of piles on site sketch.

Source Characterization Form

FIRES/BURN PITS

Fire/Burn Pits Active (Y/N)

Number of pits ______________________________

Are burns controlled/monitored (explain):

Size(s):

Method of measurement (pacing, metal tape measure, reference, etc.):

Waste stream being burned:

Containment (describe):

Run-on/Runoff controls:

Migration evident (explain): PHOTOGRAPH

Accessibility (fenced, etc.):

Resident/School/Daycare/Workers within 200 feet (indicate distance):

Comments:

Photodocument and sketch fire/burn pits on site sketch.

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Source Characterization Form

IMPOUNDMENTS

Size* ______________________ Liquid (Y/N) Overflow (Y/N) Buried/Backfilled (Y/N)

Freeboard (ft) ______________________ Diking/Berms (Y/N) condition:

Leachate (Y/N)

Lined (Y/N) type:

Permitted Discharge:

Dates of Operation:

Waste Quantity:

Type of Waste:

Containment (engineered, integrity - describe):

Observed Evidence that contents of impoundment have entered surface water (Y/N) (explain):

Accessibility (fenced, etc.):

Residents/School/Daycare/Workers within 200 feet (explain):

Sample Data:

Uses recreationally:

Comments:

*Size: Note dimensions, area, or volume and method of measurement or reference.
Photodocument and sketch impoundments on site sketch.

Source Characterization Form

LANDFARM/LAND TREATMENT

Number of areas ____________________

Size (Area 1) ____________________

Size (Area 2) ____________________

____

____

____

Method of measurement (pacing, metal tape measure, reference, etc.):

Evidence of hazardous substance migration from land treatment zone:

Is land treatment area maintained in compliance with 40CFR.264.280 (Y/N) explain:

Describe run-on control and runoff management system:

Describe presence or absence of vegetative cover:

Type of waste managed:

Quantity of waste managed (as provided):

_______ daily _______ weekly _______ monthly or _______ yearly

Sample data:

Photodocument and note locations on site sketch.

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Source Characterization Form

LANDFILL

Size* ______________________ Years in Operation ______________________

Waste Stream/Quantity: (Type I, II, III, IV)

Erosion (wind/water, indicate locations):

Evidence of Biogas (Y/N) describe:

Run-on/Runoff Control (Y/N) describe:

Ponding Water (Y/N) describe:

Lined (Y/N) Type/Construction:

Covered (Y/N) (engineered?) Thickness/Construction/Material:

Illegal Dumping (Y/N) Evidence:

Waste Accepted:

Mainfests Available? (Y/N) **Obtain copies.**

Leachate (Y/N) describe:

Leachate Controls (Y/N) describe:

Public Use (recreation, etc.):

Accessibility (fenced, etc.):

Sampling/Monitoring Data/Evidence:

Residents/Schools/Daycare/Workers within 200 feet (explain):

Comments:

*Specify area or dimensions or estimate volume from operation records.
Photodocument location and sketch location of landfill on site sketch.

Appendix C

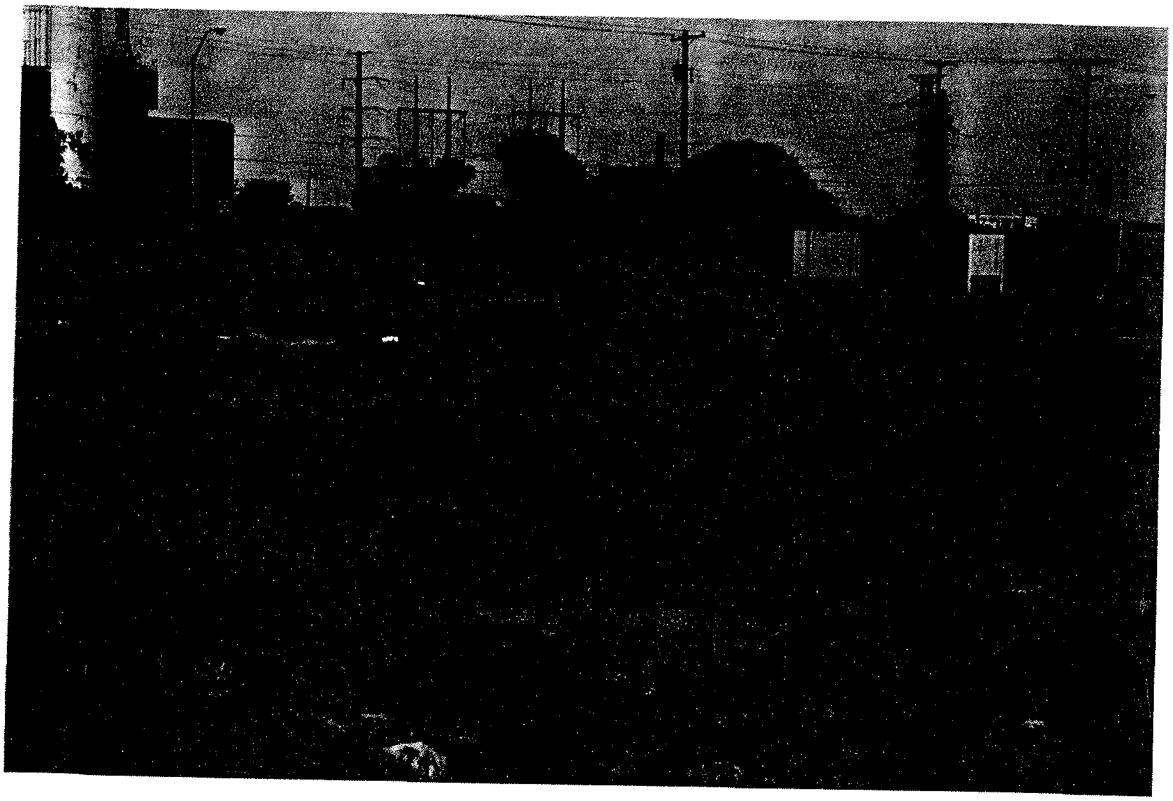


Photo #: 101

Site Name: Consolidated Casting Corp

Site Location: Dallas

CERCLIS #: TXD980626071 TDD # : T06-9503-902

Photographer\Witness: L. Ocker/L. Ayala

Date: 05/26/95 TIME: 1041 DIRECTION: northwest

Comments: Lower half of 2425 Caroline St. site.

Ecology and Environment, Inc.

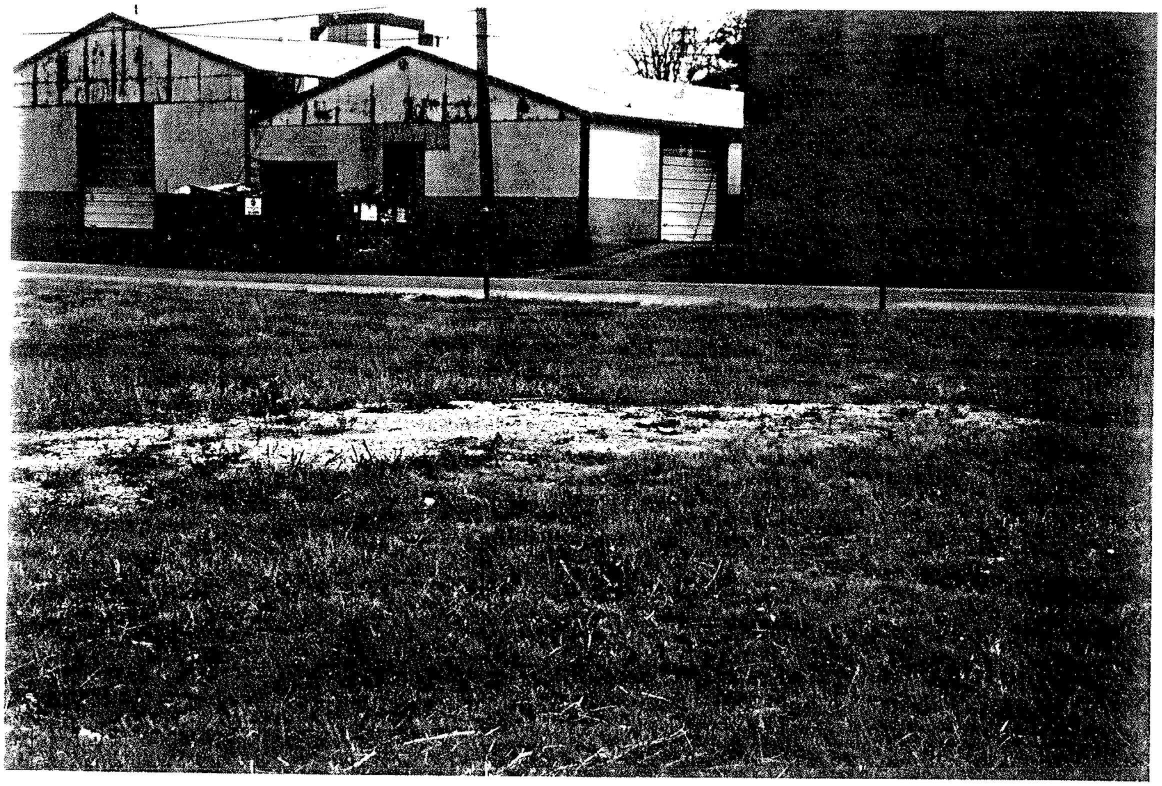


Photo #: 102

Site Name: Consolidated Casting Corp

Site Location: Dallas

CERCLIS #: TXD980626071 TDD # : T06-9503-902

Photographer\Witness: L. Ocker/L. Ayala

Date: 05/26/95 TIME: 1043 DIRECTION: east

Comments: Gravel patches on site (formerly parking area).

Photo #: 103

Site Name:	Consolidated Casting Corp
Site Location:	Dallas
CERCLIS #:	TXD980626071 TDD # : T06-9503-902
Photographer\Witness:	L. Ocker/L. Ayala
Date:	05/26/95 TIME: 1044 DIRECTION: north
Comments:	North side of lot.

Ecology and Environment, Inc.

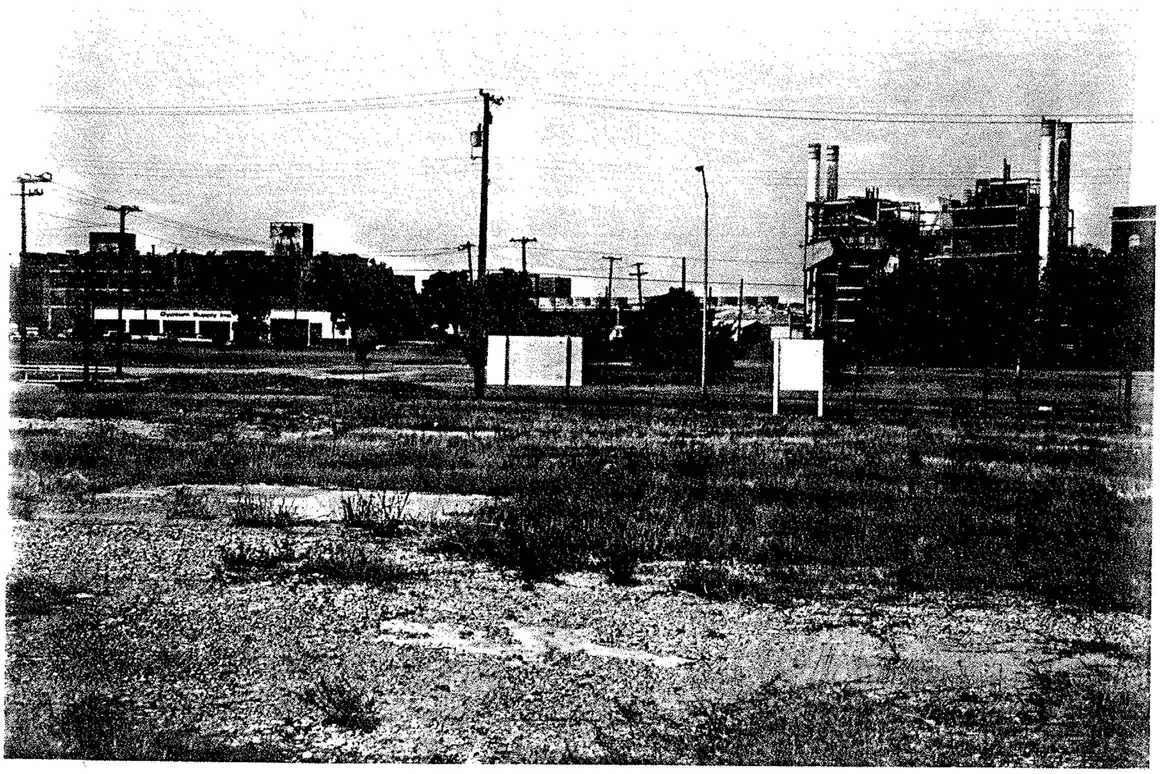


Photo #: 104

Site Name:	Consolidated Casting Corp
Site Location:	Dallas
CERCLIS #:	TXD980626071 TDD # : T06-9503-902
Photographer\Witness:	L. Ocker/L. Ayala
Date:	05/26/95 TIME: 1045 DIRECTION: west
Comments:	Westside-dock entrance.

Ecology and Environment, Inc.

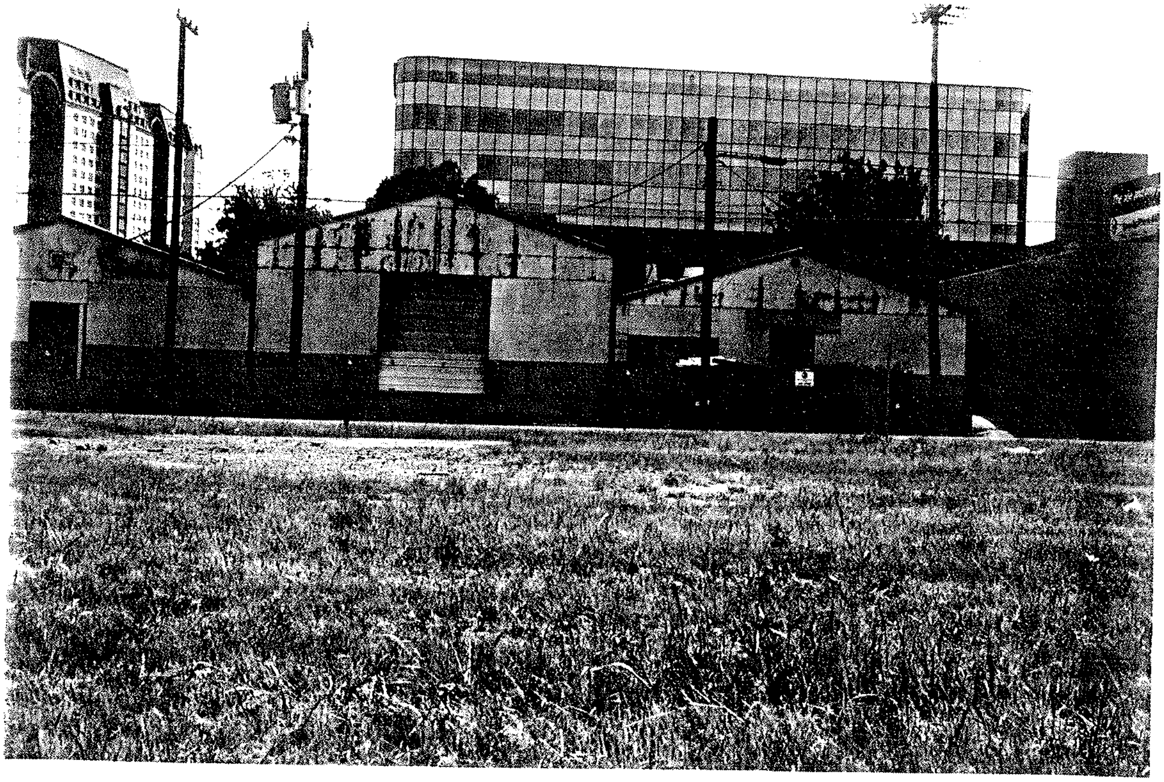


Photo #: 105

Site Name:	Consolidated Casting Corp		
Site Location:	Dallas		
CERCLIS #:	TXD980626071	TDD # :	T06-9503-902
Photographer\Witness:	L. Ocker/L. Ayala		
Date:	05/26/95	TIME: 1055	DIRECTION: East
Comments:	Panoramic view of site facing east.		

Ecology and Environment, Inc.

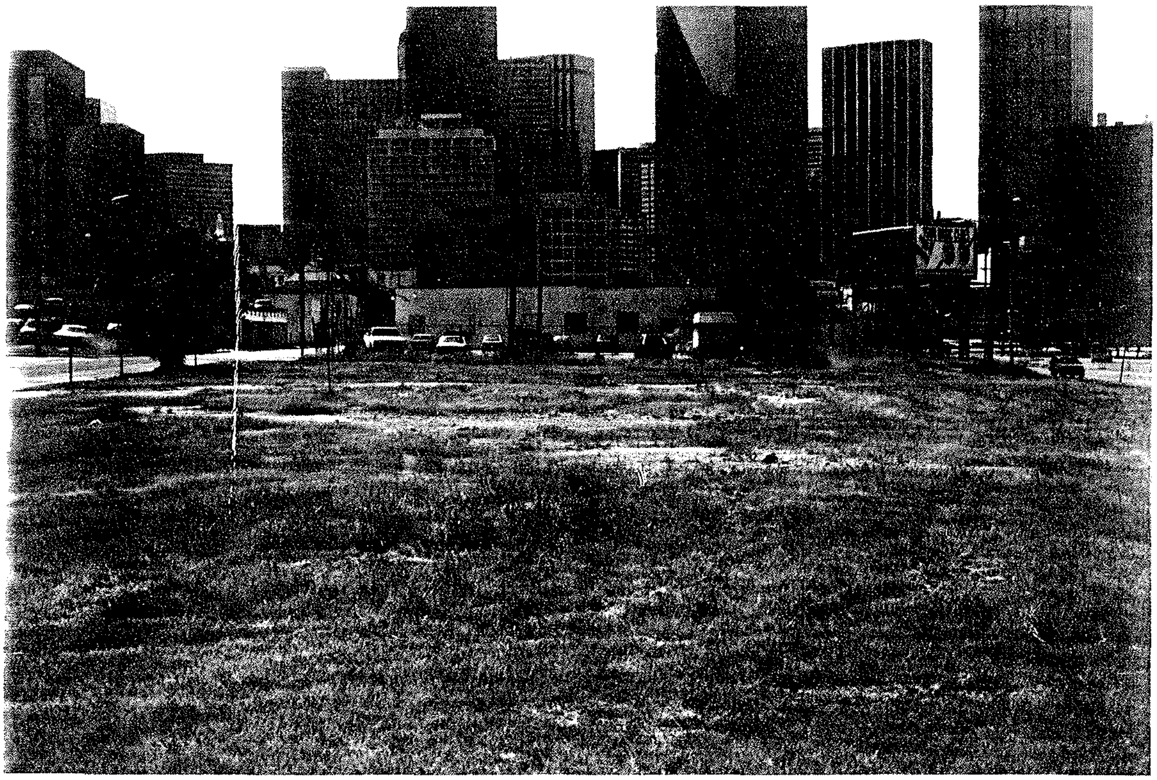


Photo #: 106

Site Name: Consolidated Casting Corp

Site Location: Dallas

CERCLIS #: TXD980626071 TDD # : T06-9503-902

Photographer\Witness: L. Ocker/L. Ayala

Date: 05/26/95 TIME: 1056 DIRECTION: south

Comments: Panoramic view facing south.

Ecology and Environment, Inc.

Photo #: 107

Site Name: Consolidated Casting Corp

Site Location: Dallas

CERCLIS #: TXD980626071 TDD # : T06-9503-902

Photographer\Witness: L. Ocker/L. Ayala

Date: 05/26/95 TIME: 1057 DIRECTION: southwest

Comments: Panoramic view facing southwest.

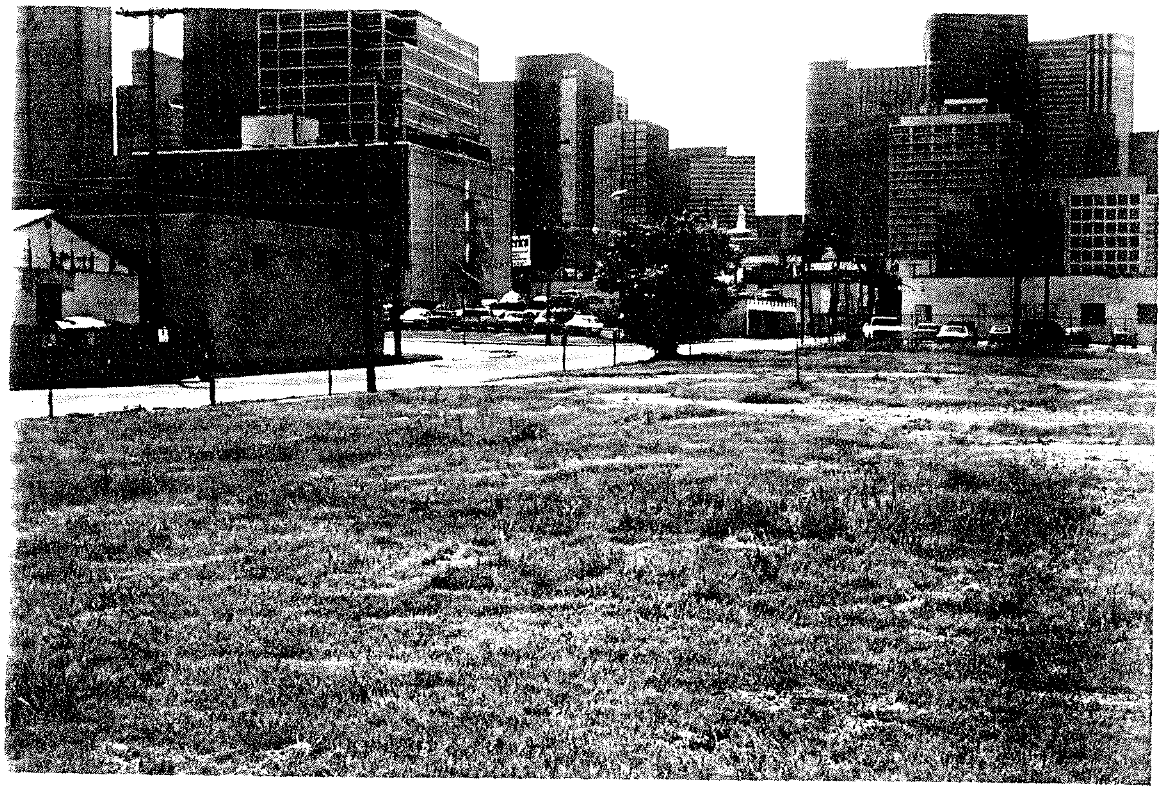


Photo #: 108

Site Name:	Consolidated Casting Corp
Site Location:	Dallas
CERCLIS #:	TXD980626071 TDD # : T06-9503-902
Photographer\Witness:	L. Ocker/L. Ayala
Date:	05/26/95 TIME: 1058 DIRECTION: southeast
Comments:	Panoramic view facing southeast.

Ecology and Environment, Inc.

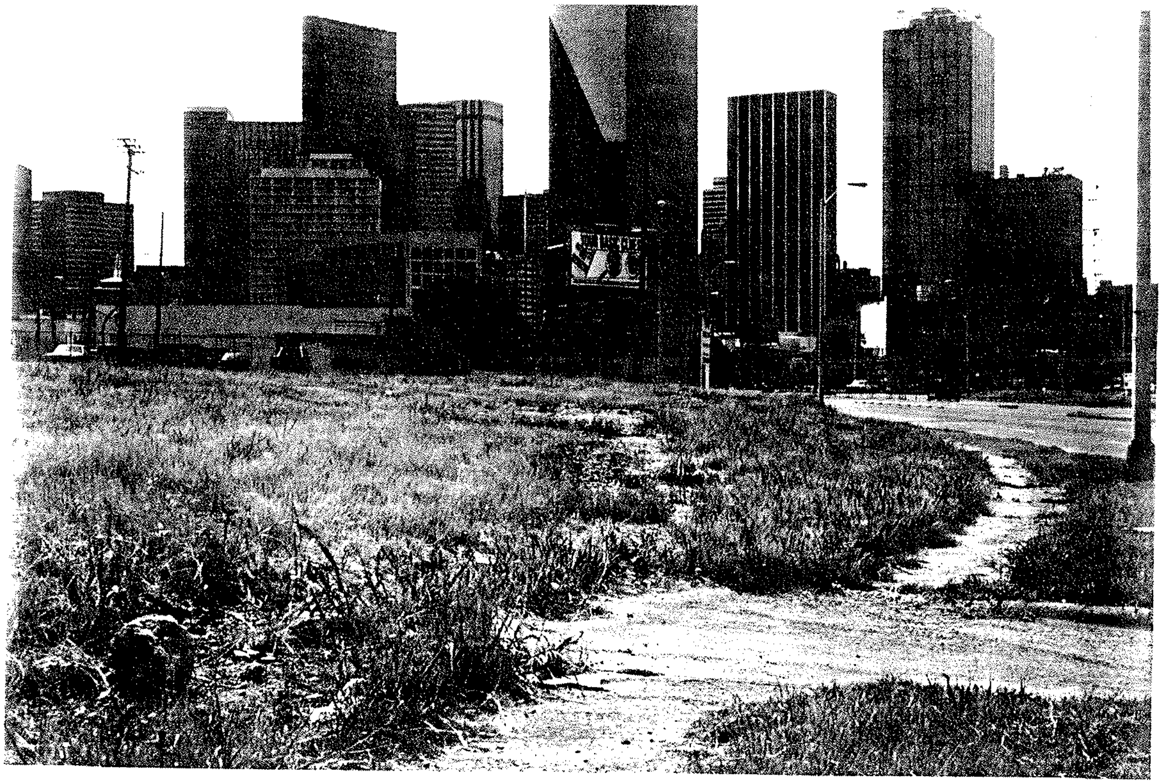


Photo #: 109

Site Name:	Consolidated Casting Corp
Site Location:	Dallas
CERCLIS #:	TXD980626071 TDD # : T06-9503-902
Photographer\Witness:	L. Ocker/L. Ayala
Date:	05/26/95 TIME: 1100 DIRECTION: west
Comments:	Slope on west side of property.

Ecology and Environment, Inc.

Photo #: 110

Site Name: Consolidated Casting Corp

Site Location: Dallas

CERCLIS #: TXD980626071 TDD # : T06-9503-902

Photographer\Witness: L. Ocker/L. Ayala

Date: 05/26/95 TIME: 1101 DIRECTION: north

Comments: Storm drain, northwest corner.

Ecology and Environment, Inc.

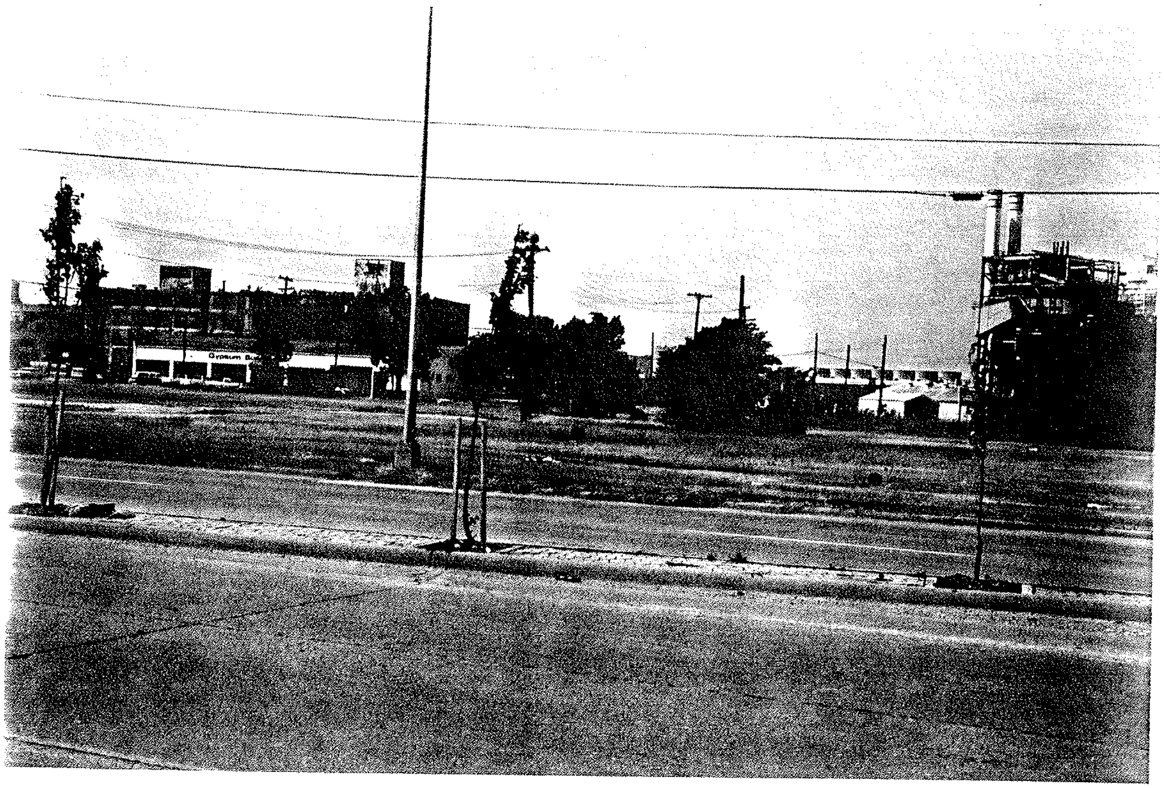


Photo #: 111

Site Name: Consolidated Casting Corp

Site Location: Dallas

CERCLIS #: TXD980626071 TDD # : T06-9503-902

Photographer\Witness: L. Ocker/L. Ayala

Date: 05/26/95 TIME: 1104 DIRECTION: west

Comments: Drums located across Field St.

Ecology and Environment, Inc.

PA DOCUMENTATION LOG SHEET

SITE:	CONSOLIDATED CASTING CORP.
IDENTIFICATION NUMBER:	CERCLIS ID # TXD980626071
CITY:	DALLAS
STATE:	TEXAS

REFERENCE NUMBER	DESCRIPTION OF THE REFERENCE
1	Memorandum. From: Lana Ocker, Ecology and Environment. To: File. Re: Site Conditions at the Inactive Consolidated Casting Corp. Site, CERCLIS #TXD980626071.
2	United States Environmental Protection Agency, Potential Hazardous Waste Site Identification. Form 2070-11(7-81). Consolidated Casting Corp. CERCLIS TXD980626071. April 12, 1990.
3	Letter. From: Joe E. Hull, Corporate Safety Administrator, Consolidated Casting Corp. To: Minor Hibbs, Permits Section, Texas Water Commission. Re: Notification of Closure of 2425 Caroline Street Facility. July 29, 1986.
4	Texas Manufacturers Register, Manufacturers' News, Inc. First Edition, 1985.
5	United States Environmental Protection Agency, Form 3510-1 (6-80). General Information. November 7, 1980.
6	Letter. From: Sam Sims, Corporate Safety Manager, Consolidated Casting. To: Minor Brooks Hibbs, Texas Department of Water Resources. Re: TDWR No. 30395 (Consolidated Casting). November 29, 1984.
7	Record of Communication. From: Leticia Ayala, Ecology and Environment, Inc. To: John Hopkins, Consolidated Casting Corp. Re: Consolidated Casting Corp. April 12, 1995. CERCLIS #TXD980626071.
8	Affidavit of Exclusion from Hazardous Waste Permitting Requirement. Registration No. 30395, Application No. 40444, Consolidated Casting Corp. February 21, 1986.

REFERENCE NUMBER	DESCRIPTION OF THE REFERENCE
9	Interoffice Memorandum, Texas Water Commission. From: Sam Gavarole, Texas Water Commission. To: Rex Coffman, Texas Water Commission. Re: Hazardous Waste Permit Exclusion Review. July 29, 1986.
10	Letter. From: Minor Brooks Hibbs, Chief, Permits Section, Hazardous and Solid Waste Division, Texas Water Commission. To: Joe Hull, Corporate Safety Administrator, Consolidated Castings Corp. Re: Consolidated Casting Corp. - Application No. 40444, Registration No. 30395 - Dallas, Texas Site. August 29, 1986.
11	Interoffice Memorandum, Texas Water Commission. From: Tim Sewell, Environmental Quality Specialist, District 4, Texas Water Commission. To: Bill Brown, Field Operations Liaison, Hazardous and Solid Waste Division, Texas Water Commission. Re: Consolidated Casting Corp Annual Compliance Inspection. February 7, 1986.
12	Analytical Data and Sampling Location Map from Environmental Support Services. June 17, 1994.
13	Texas Department of Water Resources Report 269. "Occurrence, Availability, and Quality of Ground Water in the Cretaceous Aquifers of North-Central Texas Vol. 1". April 1982.
14	The University of Texas at Austin, Bureau of Economic Geology. "Geologic Atlas of Texas, Dallas Sheet". 1972, Revised 1988.
15	Texas Water Commission Report 89-01. "Ground Water Quality of Texas". March 1989.
16	Letter. HRS Net Precipitation Values. From: Andrew M. Platt, Group Leader, MITRE Corporation. To: Lucy Sibold, EPA. May 26, 1988.
17	Texas Department of Water Resources Report 269. "Occurrence, Availability, and Chemical Quality of Ground Water in the Cretaceous Aquifers of North Central Texas, Vol. 2". July 1982.
18	Letter. From Alex Zocchi, ICF Kaiser Engineers. To: David Terry, Ground Water Section, Texas Water Commission. Re: Texas' Wellhead Protection Program. July 15, 1991.

REFERENCE NUMBER	DESCRIPTION OF THE REFERENCE
19	Record of Communication. From: Lloyd Denman, Department of Public Works, City of Dallas. To: Lana Ocker, Ecology and Environment, Inc. Re: Storm water discharge from the Consolidated Casting Site. July 18, 1995. CERCLIS #TXD980626071.
20	U.S. Geological Survey, 7.5-minute topographic maps of Texas: Dallas, photorevised 1981; White Rock Lake, photorevised 1973; Hutchins, photorevised 1973; Oak Cliff, photorevised 1981;
21	U. S. Geological Survey Water-Data Report TX-88-1. "Water Resources Data, Texas Water Year 1988 Vol. 1". 1989.
22	Texas Water Commission LP-92-16. The State of Texas Water Quality Inventory, 11th Edition. August 1992.
23	U. S. Department of Agriculture Soil Conservation Service. Soil Survey of Dallas County, Texas. February 1980.
24	Herschfield, David M. "Rainfall Frequency Atlas of the United States". U.S. Weather Bureau Technical Paper No. 40. 1961.
25	Federal Emergency Management Office, Flood Insurance Rate Map, City of Dallas, Community Panel No. 480171 0135 D. Map revised July 2, 1991.
26	Record of Communication. From: Leticia Ayala, Ecology and Environment, Inc. To: Dallas Water Utilities. Re: Drinking Water Sources for 2425 Caroline St. April 27, 1995. CERCLIS #TXD980626071.
27	Record of Communication. From: Lana Ocker, Ecology and Environment, Inc. To: Richard Browning, Planning Department, Trinity River Authority. Re: Surface Water Intakes on the Trinity River. July 27, 1995. CERCLIS #TXD980626071.
28	U.S. Fish and Wildlife Department. Wetland Inventory Maps, Dallas, Texas. Dallas, 1981.
29	U.S. Environmental Protection Agency. Graphical Exposure Modeling Database 1990. Accessed by Leticia Ayala, April 12, 1995.
30	U.S. Environmental Protection Agency. OSCARS Database, BCD Species, White Rock Lake Quadrangle.

PA DOCUMENTATION LOG SHEET

REFERENCE NUMBER	DESCRIPTION OF THE REFERENCE
31	Superfund Chemical Data Matrix. Appendices B-1, B-2, and C. October 29, 1991.
32	Texas Water Commission, Industrial Solid Waste System Registration Report. February 2, 9_. Pages 344-345.
33	Van Nostrands's Scientific Encyclopedia. Fifth Edition. Douglas M. Considine, editor, 1976.

REFERENCE 1

MEMORANDUM

TO: File

FROM: Lana Ocker, Site Manager *JO*

DATE: September 9, 1995

RE: On-site Reconnaissance of the inactive Consolidated Casting Corp. site.

During the on-site reconnaissance inspection and site representative meeting, conducted on May 26, 1995 the following information was learned:

- The site consists of approximately 38,000 square feet. At the time that Dallas General Life bought the property it was a vacant field, much as it was at the time of the inspection. The site was being used to park cars and equipment for a construction company.

- The site is bounded by Caroline Street on the east, Ashland St. on the south, Field St. on the west, and Wichita St. on the north. The site vicinity is predominately commercial with light industrial facilities. Multi-family residential properties were observed within ¼ mile. The site is vegetated with native grasses, which were mown at the time of the investigation. There were gravel patches (three), one small concrete pad and an asphalt pad located on-site. It could not be determined if the patches and pad were left from the Consolidated Casting building, or if they were put down by the construction company for parking areas. There was no evidence of recreational activity, or evidence that people cross the site as a short cut. There was no evidence that the site was used for resource purposes, i.e., agriculture, silviculture, aquaculture. There was no evidence of drums, tanks, or other storage containers. No odors, stained soil or distressed vegetation, indicating spills or releases, was observed. No conditions which could cause an explosion or fire, or a release to a surface water body were observed. Drainage from the site was thought to enter a storm drain at the north east corner of the street, at the intersection of Wichita and Field Streets. The nearest regularly occupied buildings are located east of the site, approximately 200 feet from the site.

REFERENCE 2

EPA POTENTIAL HAZARDOUS WASTE SITE IDENTIFICATION	REGION 6	SITE NUMBER TXD980626071

NOTE: The initial identification of a potential site or incident should not be interpreted as a finding of illegal activity or confirmation that an actual health or environmental threat exists. All identified sites will be assessed under the EPA's Hazardous Waste Site Enforcement and Response System to determine if a hazardous waste problem actually exists.

A. SITE NAME	B. STREET (or other identifier)			
Consolidated Casting Corporation	2425 Caroline St.			
C. CITY	D. STATE	E. ZIP CODE	F. COUNTY NAME	Code
Dallas	TX	75201	Dallas	113

G. OWNER/OPERATOR (if known)

1. NAME Joe Hull
P. O. Box 29242/ Dallas, TX/ 75229

2. TELEPHONE NUMBER 214-241-2161

H. TYPE OF OWNERSHIP (if known)

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☐ 5. PRIVATE ☐ 6. UNKNOWN

I. SITE DESCRIPTION

Lat 32 / 46 / 30.0 Lon 096 / 48 / 30.0

RCRA Site, EPI Site, See RCRA files.

J. HOW IDENTIFIED (i.e., citizen's complaints, OSHA citations, etc.)

EPI Site --- Environmental Priorities Initiative

K. DATE IDENTIFIED (mo., day, & yr.) 4 / 12 / 90

L. SUMMARY OF POTENTIAL OR KNOWN PROBLEM

Site designated by RCRA as an EPI site, status CLOSE or CLOSURE.

M. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE (mo., day, & yr.)
Bartolome J. Canellas (6H-MA)	214-655-6740	6/14/90

EPA Form 2070-8 (5-80)

REFERENCE 3

Consolidated
Casting
Corp

Precision Investment Castings

1501 S. Int. 45 / P.O. Drawer B / Hutchins, Texas 75141

#30395
8/13/86
(mu)
Inactive

July 29, 1986

Mr. Minor Hibbs
Texas Water Commission
Permits Section
Waste Disposition Control Unit - Solid Waste Section
P. O. Box 13087 - Capitol Station
Austin, Tx. 78711-3087

TXD 980 626071

Re: Registration No. 30395

Dear Mr. Hibbs:

This letter is to notify your office of the closure of Consolidated Casting Corporation facility at 2425 Caroline Street, Dallas, Texas, and thus the cessation of generating hazardous waste at that same location.

We have opened a new facility which is located at 1501 South I-45, Hutchins, Texas. The same wastes will be generated, treated and stored at this location in a manner similar to the previous location. With the exception of the new generator's address, the information on the Notice of Registration dated March 25, 1986, remains the same.

Please make the changes accordingly. If any questions may arise, please do not hesitate to contact me.

Sincerely,

Consolidated Casting Corp.

Joe E. Hull
Joe E. Hull
Corporate Safety Administrator

JEH/bc

REFERENCE 4

MNI

TEXAS
MANUFACTURERS
REGISTER

1985
First Edition

ISSN 0743-1163

$110

Published by
MANUFACTURERS' NEWS, INC.
Established 1912
4 East Huron Street
Chicago, Illinois 60611
312/337-1084

Dallas—(cont.)

Steel cable (3315)
Employs—13
Computer—Wang

CONNELL INC., DOUG
4732 W. Illinois Ave., P.O. Box 210093 (75211)
Telephone—(214) 337-8931
Est. 1954; Distrib.—National
Chrm.—Doug Connell
Pres., GM—Pat Connell
Secy-Treas.—Mary Ann Hamilton
Aluminum castings, moldings, & stainless steel railings (3361)
Employs—36 Office—3 Plant—33
Annual Sales—$1.2MM
20,000 sq. ft.

CONNELL PRINTING CO., INC.
12057 Garland Rd. (75218)
Telephone—(214) 328-1351
Est. 1949; Distrib.—Local
Pres.—Albert Connell
V-P.—Mildred Connell
V-P.—Jack Connell
Offset printing (2751)
Employs—2

CONNOLLY TOOL & MACHINE CO.
Div. of Ennis Business Forms, Inc.
2605 Brenner Dr. (75220)
Telephone—(214) 357-5648
Distrib.—National
Pres.—John Connolly
V-P. & GM—Pat Ferrerio
V-P. & Shop Supt.—Harry J. Mayben
Acct. & Off. Mgr.—W. H. Bird
Tools, dies, fixtures, jigs & special machining (3544)
Employs—60 Office—12 Plant—48
Annual Sales—$6MM
36,500 sq. ft.
Computer—Mohawk
Parent co.—Ennis Business Forms, Inc., Ennis

CONSOLIDATED CASTING CORP.
2425 Caroline St. (75201)
Telephone—(214) 871-9051
Est. 1967; Distrib.—National
Pres.—M. J. La Due
V-P., GM—William Wurster
Investment castings (3324)
Employs—175

CONSOLIDATED FABRICATORS INC.
3440 Fordham (75216)
Telephone—(214) 376-4389
Est. 1964; Distrib.—Local
Pres.—Frank Hiss
Steel tanks & pressure vessels (3443)
Employs—10

CONSOLIDATED FIBERS INC.
1611 Payne St. (75201)
Telephone—(214) 748-9611
Distrib.—International
GM—Jerry Ryles
Paper recycling (2611)
Employs—33 Importer Exporter
Computer—Radio Shack TRS-80
Home office—San Francisco, CA

CONSTRUCTION SIGHT INC., THE
4417 Belmont, P.O. Box 45292 (75245)
Telephone—(214) 821-1470
Est. 1979; Distrib.—Local
Pres.—Donna Nelson
V-P.—Carma Halfman
Typesetting (2791)
Employs—4

CONTACT PRODUCTS, INC.
9244 Markville Dr. (75243)
Telephone—(214) 231-6367
Est. 1959; Distrib.—National
Pres.—W. Garner McNett
Ex. V-P.—Ron Kilgore
Pur. Agt.—Phyllis Fagan
Data Proc. Mgr.—Donna Fitzgerald
Plt. Mgr.—Bob Perkins
Pressure sensitive labels (2642)
Employs—100 Office—32 Plant—68
Annual Sales—$6MM
80,000 sq. ft.
Computer—IBM System 34 RPG

CONTAINER SERVICE CORP.
3061 W. Saner (75233)
Mail addr: P.O. Box 210629, Dallas (75211)
Telephone—(214) 330-9286
Est. 1965; Distrib.—Regional
GM—Don Evans
Corrugated containers (2653)
Employs—100
Computer—Basic Four
Home office—13301 River Bend Dr., Dallas
Telephone—(214) 634-0673

CONTEMPORARY ART & TYPE
277 Casa Linda Plaza (75218)
Telephone—(214) 321-3350
Distrib.—Local
Owner—Martha Plunkett
Commercial typesetting (2791)
Employs—1
Computer—Compugraphic

CONTINENTAL BATTERY MFG. CORP.
4919 Woodall (75247)
Telephone—(214) 631-5701
Est. 1930; Distrib.—Regional
Pres.—B. McKenzie
V-P.—C. McCann
Automotive batteries (3691)
Employs—50

CONTINENTAL ELECTRONICS MFG. CO.
4212 S. Buckner Blvd. (75227)
Telephone—(214) 381-7161
Est. 1946; Distrib.—International
Chrm. & Pres.—J. O. Weldon
Ex. V-P., Admn.—B. T. Watson, Jr.
Ex. V-P., Opers.—W. D. Mitchell
Sr. V-P., Matls. & Serv., Pers. Mgr.—R. C. Forbes
Sr. V-P., Fin. & Treas.—R. F. Burgert
V-P., Domestic Mktg.—A. V. Collins
V-P., Intl. Mktg.—E. L. King
V-P., Mfg.—R. M. McDonald
Comp.—P. W. Walker
Cred. Mgr.—Craig Raven
Exp. Mgr.—E. L. King
Adv. Mgr. & PR—Vernon Collins
Pur. Agt.—D. D. Darnelll
Data Proc. Mgr.—E. R. McBurney
Plt. Mgr.—C. K. George
Traf. Mgr.—S. A. Robertson
RF transmitters for broadcast, communications, radar & special research industries (3662)
Employs—366 Office—113 Plant—253
Annual Sales—$30MM
225,000 sq. ft. Exporter
Computer—Prime 550 FORTRAN & Basic

CONTINENTAL L-P PRODUCTS CO., INC.
130 Yorktown (75208)
Mail addr: P.O. Box 225323, Dallas (75265)
Telephone—(214) 741-6081
Est. 1953; Distrib.—International
Pres.—David P. Ward
V-P.—Joyce K. Ward
Secy-Treas.—J. M. Dowd
Sales Mgr.—George W. Powell
Plt. Mgr.—Robert C. Clarke
Central units, valves & fittings for anhydrous ammonia fertilizer (3494)
Employs—40
Annual Sales—$2.5MM
38,000 sq. ft. Exporter
Subsidiaries: Continental NH3 Co., Inc. & Continental International

CONTINENTAL PRINTING CO.
1219-21 Fort Worth Ave. (75208)
Telephone—(214) 748-2987
Est. 1964; Distrib.—Local
Owner—Ed Stanford
Commercial printing (2751)
Employs—3

CONTINENTAL RETAIL SERVICES
1878 W. Mockingbird Ln. (75235)
Telephone—(214) 631-4114
Est. 1979; Distrib.—International
Pres.—Charles McCool
Printing plates (3555)
Employs—30 Exporter

CONTINETAL BAKING CO.
Div. of Ralston Purina Co.
9000 Denton Dr. (75235)
Telephone—(214) 358-0232
Est. 1965; Distrib.—Regional
GM—Bruce Broadbent
Opers. Mgr.—Ron McCulloch
Breads & cakes (2051)
Employs—300 Exporter
Parent co.—Ralston Purina Co., St. Louis, MO

CONTRACTORS IRON & STEEL CO.
2601 N. Beckley Ave. (75208)
Telephone—(214) 742-6517
Distrib.—Local
Pres.—Steve Leavell
Structural steel fabricating (3441)
Employs—62

CONTROLLED SOLAR SYSTEMS INC.
1451 S. Fitzhugh (75223)
Telephone—(214) 821-5080
Est. 1977; Distrib.—International
Pres.—Richard Green
Heat recovery equipment (3443)
Employs—10 Exporter

CONVERTERS INK CO.
Div. of Beatrice Food Co.
5117 Norwood Rd., P.O. Box 47765 (75247)
Telephone—(214) 638-7602
Distrib.—Regional
Br. Mgr.—Ron Rhodes
Printing ink (2893)
Employs—20
Parent co.—Beatrice Food Co., Chicago, IL

COOK CONSTRUCTION CO., LOY C.
1244 Round Table Dr. (75247)
Telephone—(214) 630-8751
Est. 1973; Distrib.—International
Pres.—Loy C. Cook
V-P.—Ronnie Trogden
Custom architectural woodwork (2431)
Employs—50 Exporter
Computer—IBM

COOK MACHINERY CO.
Div. of A L D, Inc.
4301 S. Fitzhugh Ave. (75226)
Telephone—(214) 421-2135
Est. 1944; Distrib.—International
Pres.—Judith Strite-Campbell
V-P.—W. E. Brown
Exp. Mgr.—Bill Schroff
Pur. Agt.—Mark Schonwetter
Data Proc. Mgr.—Karen Gray
Plt. Mgr.—Wallace Arnold
Traf. Mgr.—Lena Joyner
Chief Engr.—Eldon Brown
Commercial & industrial washer extractors & dryers (3559)
Employs—65 Office—15 Plant—50
Annual Sales—$3MM
100,000 sq. ft. Exporter
Computer—IBM System 34 RPG-II
Subsidiaries: Meter-All Mfg. Co., Inc.; Cook Tank & Industrial Mfg. Co.

COOPER CORP., PETER
4722 Bronze Way (75236)
Telephone—(214) 339-2266
Est. 1827; Distrib.—National
Plt. Mgr.—Gary Folk
Adhesives (2891)
Employs—6
Home office—Charlotte, NC

COOPER INDUSTRIES, PORTABLE RIG DIV.
4400 Hatcher St. (75210)
Telephone—(214) 428-1561
Est. 1833; Distrib.—International
V-P. & GM—E. E. Weadock
Comp.—John Volpe
Cred. Mgr.—William Baxter
Off. Mgr.—Jack McKelvain
Adv. Mgr.—Jack Caldwell
Mktg. Dir.—Gary Cunningham
Pers. Mgr.—Charles Duvall
Pur. Agt.—Ed House
Data Proc. Mgr.—Jim Champion
Plt. Mgr.—Chuck Galletti
Traf. Mgr.—William Gibbons
Chief Engr.—Elbert Smith
Supt.—Bill Higgins
Portable drilling rigs (3533)
Employs—400 Office—100 Plant—300
Annual Sales—$75MM
100,000 sq. ft. Importer Exporter
Computer—IBM
Home office—1001 Fannin, Houston (77002)
Telephone—(713) 739-5400
Emp. in state—2,000
Total Emp.—30,000
Pres. & CEO—Robert Cizik
Sr. V-P., Fin.—Dewain Cross
Sr. V-P., Admn.—Alan Riedel
Cont.—William Agnew
AKA: Gardner-Denver

COOPER VISION INC.
1475 Prudential (75247)
Telephone—(214) 638-2231
Est. 1962; Distrib.—National
GM—John Freid
Optical lenses (3851)
Employs—30
Home office—San Jose, CA

COPE ENTERPRISES INC., GARRY
2853 Anode Ln. (75220)
Telephone—(214) 351-5350
Distrib.—Local
Pres.—Garry Cope
Commercial printing & embossing (2751)
Employs—3

REFERENCE 5

Please print or type in the unshaded areas only (fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F | T X D 9 8 0 6 2 6 0 7 1 | 3

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill—in area*(s)* below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold—faced terms.

SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a discharge to **waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)		X		D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X			F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, **underground sources of drinking water**? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP CONSOLIDATED CASTING CORPORATION

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)	B. PHONE (area code & no.)
2 WURSTER WILLIAM VICE PRESIDENT	214 748 9051

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 2425 CAROLINE STREET

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 DALLAS	TX	75201

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 SAME

B. COUNTY NAME

DALLAS

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)
6 DALLAS	TX	75201	

NOV 12

EPA Form 3510-1 (6-80)

CONTINUE ON REVERSE

VII. SIC CODES (4-digit, in order of priority)

A. FIRST		B. SECOND	
C 7 3369	(specify) Precision Casting	C 7	(specify)
C. THIRD		**D. FOURTH**	
C 7	(specify)	C 7	(specify)

VIII. OPERATOR INFORMATION

A. NAME: C 8 GRC ASSOCIATES

B. Is the name listed in Item VIII-A also the owner? ☒ YES ☐ NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC (other than federal or state)
O = OTHER (specify)

P (specify) N/A

D. PHONE (area code & no.): C A 214 241 2161

E. STREET OR P.O. BOX: 11616 HARRY HINES BLVD.

F. CITY OR TOWN	G. STATE	H. ZIP CODE
C 8 DALLAS	TX	75220

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☒ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	D. PSD (Air Emissions from Proposed Sources)	
9 N	9 P	
B. UIC (Underground Injection of Fluids)	**E. OTHER (specify)**	
9 U	9	(specify)
C. RCRA (Hazardous Wastes)	**E. OTHER (specify)**	
9 R	9	(specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

F9: A/30

XII. NATURE OF BUSINESS (provide a brief description)

We manufacture Precision Investment Casting with Steel, Brass Bronze, and Aluminum Alloys to include some Cobalt and Nickel base casting.

F9: A/51

XIII. CERTIFICATION (see instructions)

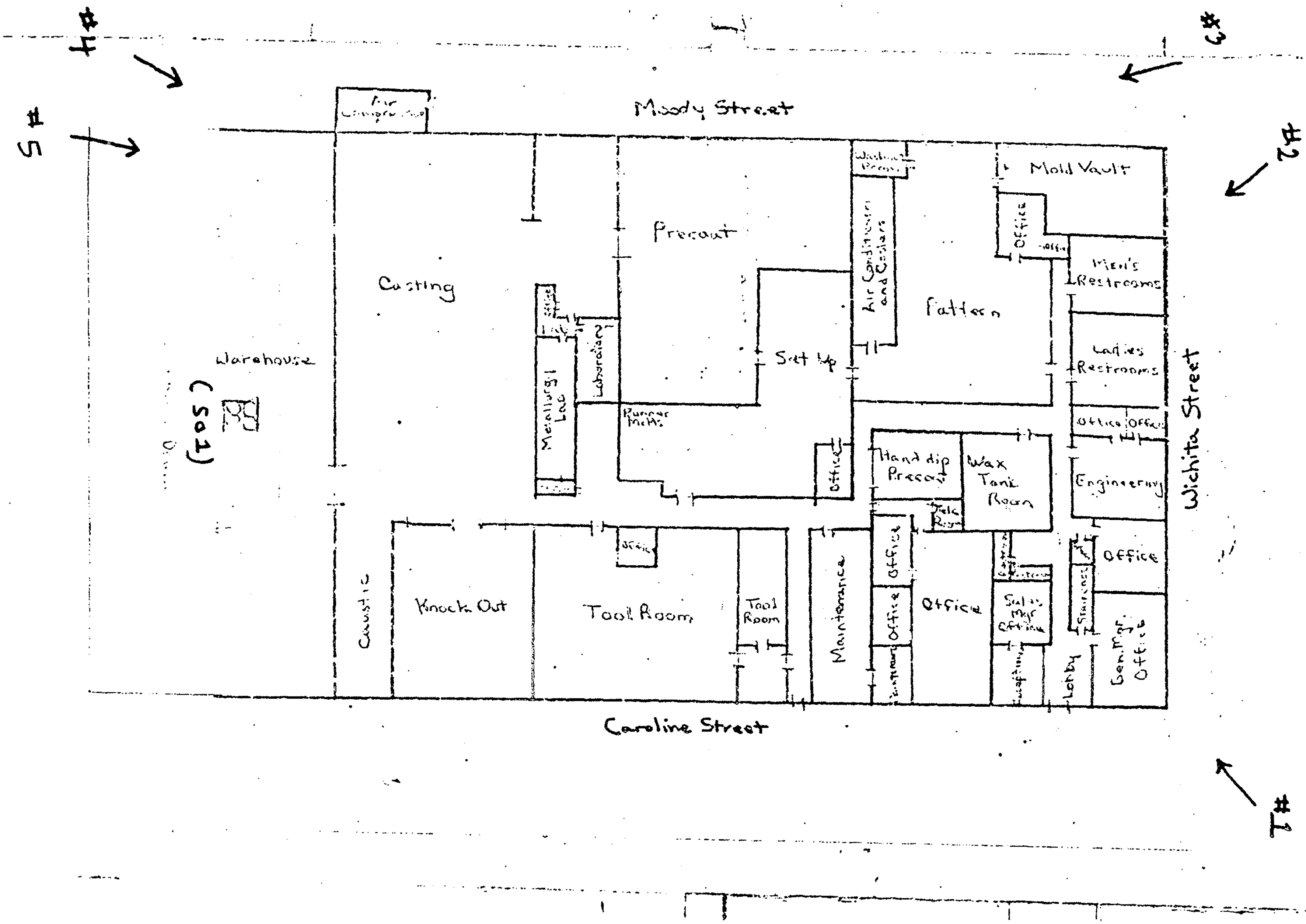
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
William Wurster Vice President	Wm Wurster	Nov. 7, 1980

COMMENTS FOR OFFICIAL USE ONLY

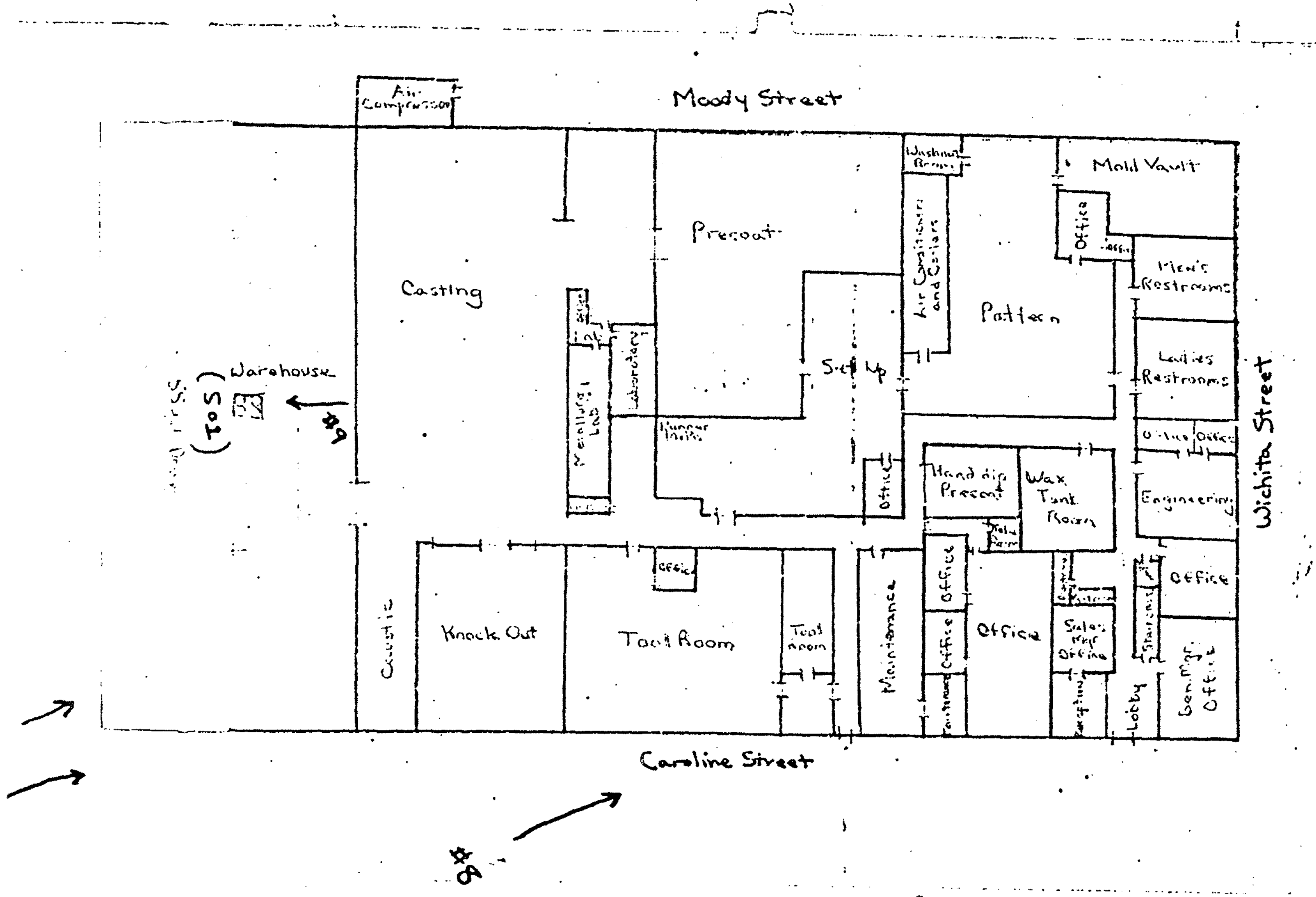
VII Photographs

Form 3



VII. Photographs

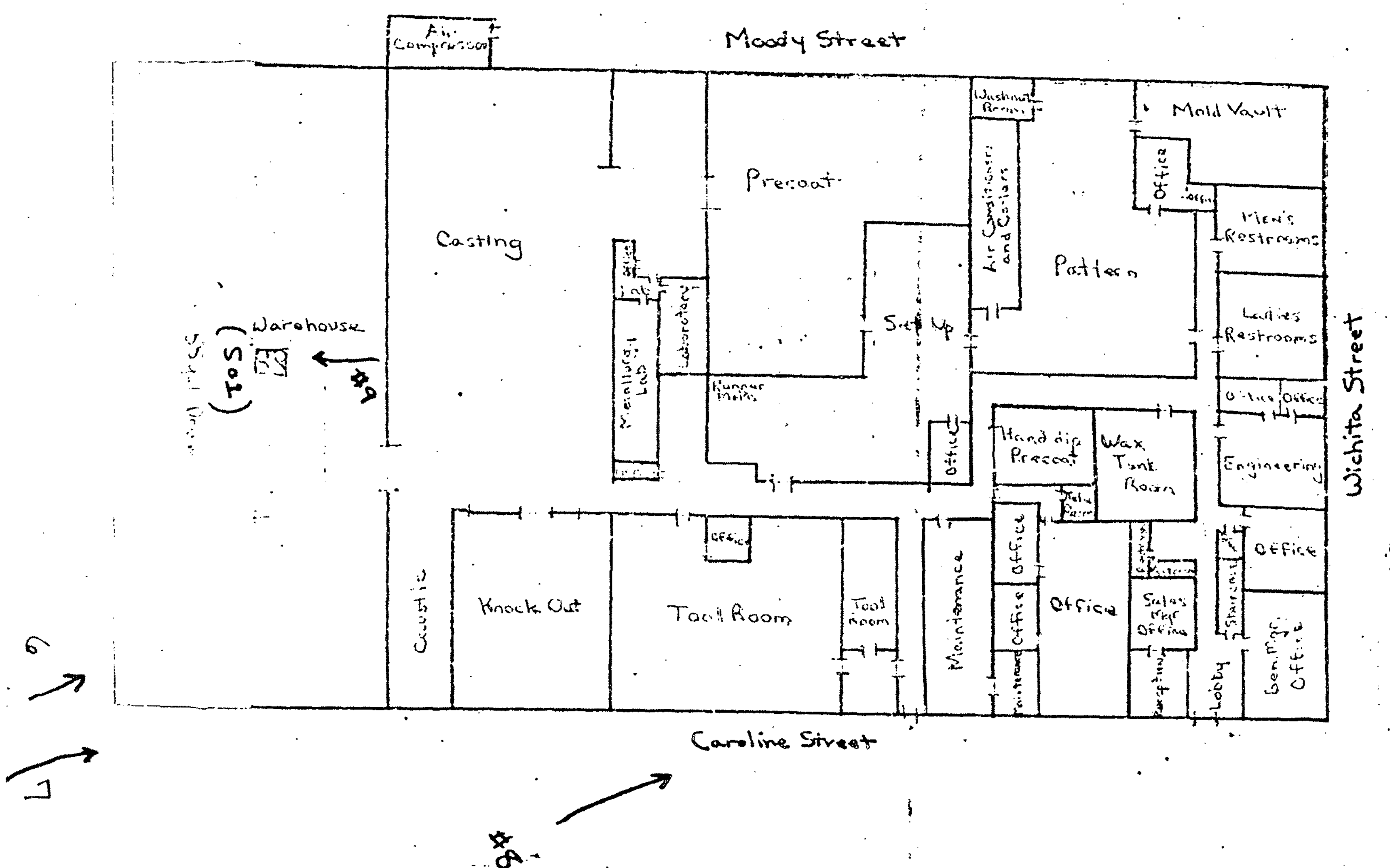
Form 3

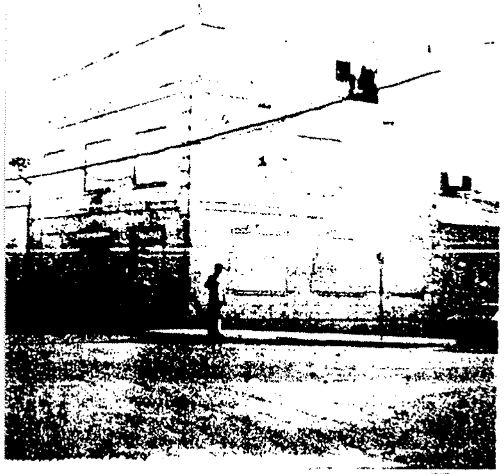


(2)

VII. Photographs

Form 3





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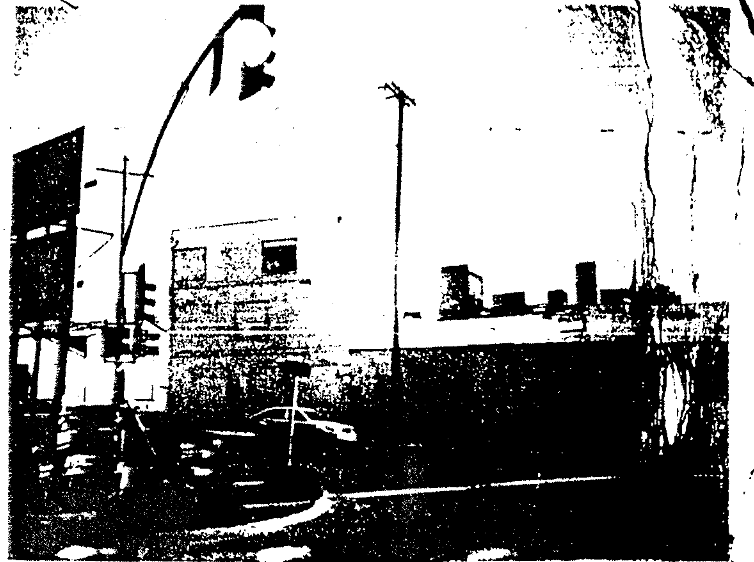

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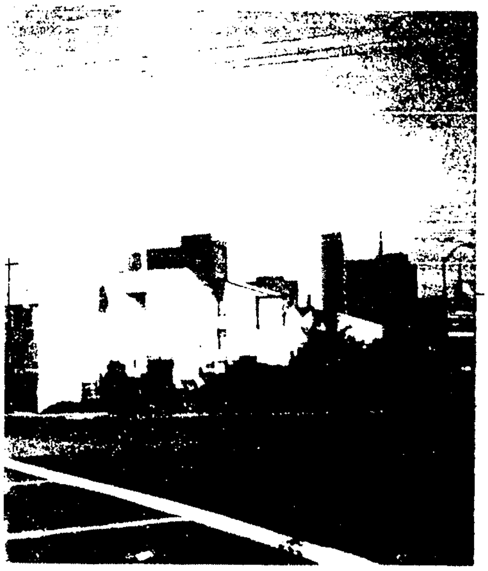

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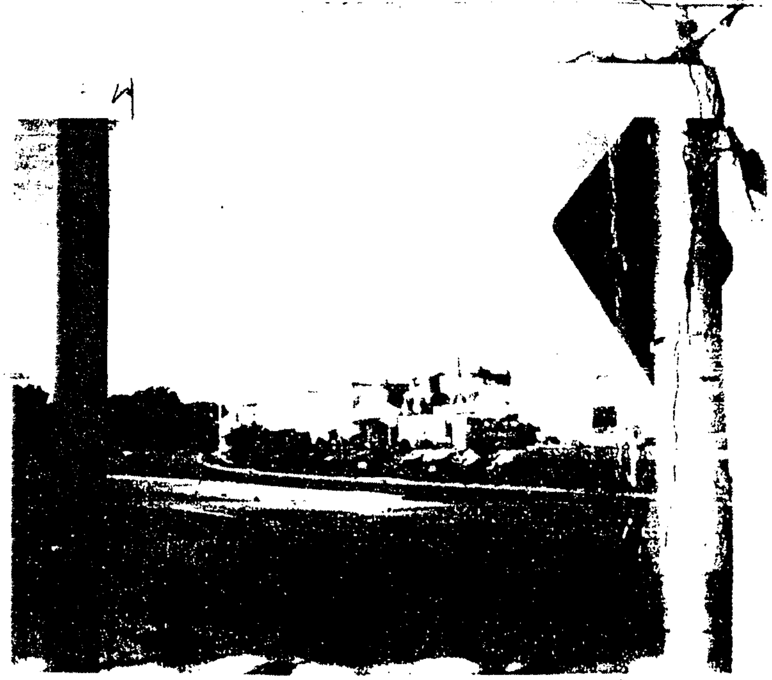

#4

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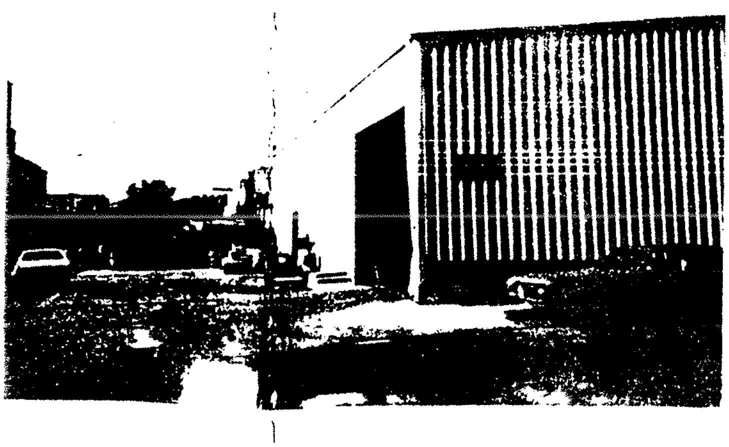

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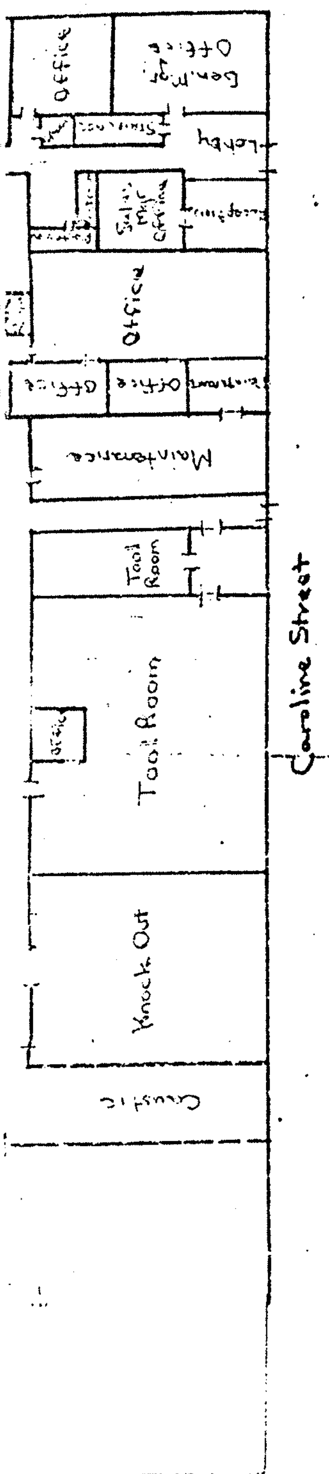
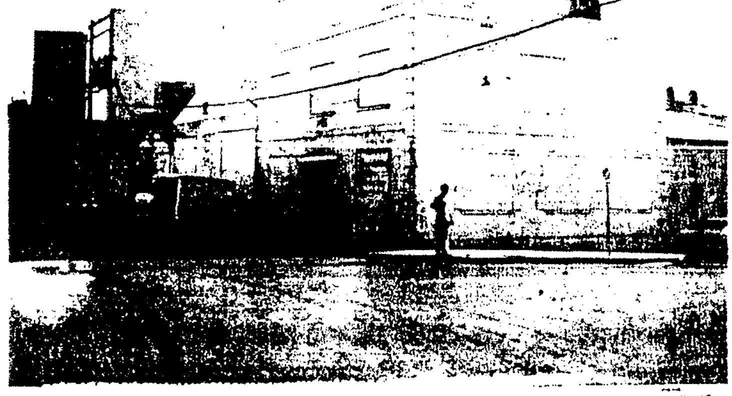


Office
Gen. Mgr. Office
Stairs
Lobby
Sales Mgr. Office
Reception
Office
Office
Office
Maintenance
Tool Room
Office
Tool Room
Knock Out
Caustic
Caroline Street



7

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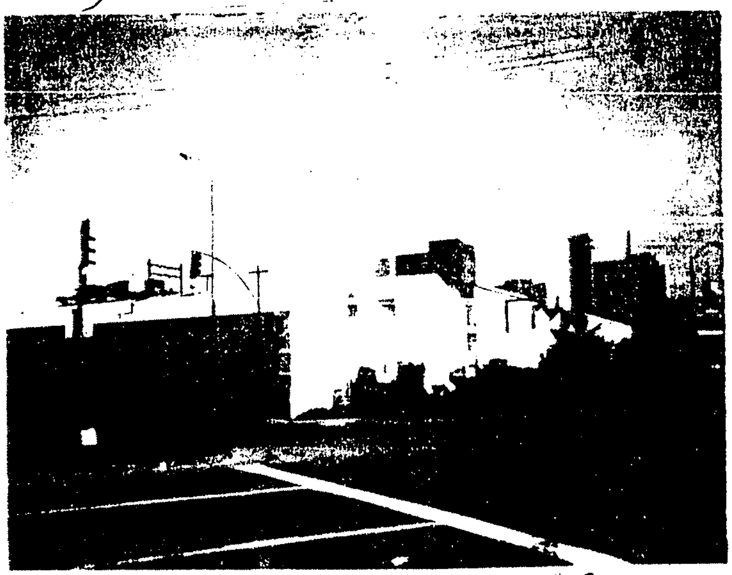

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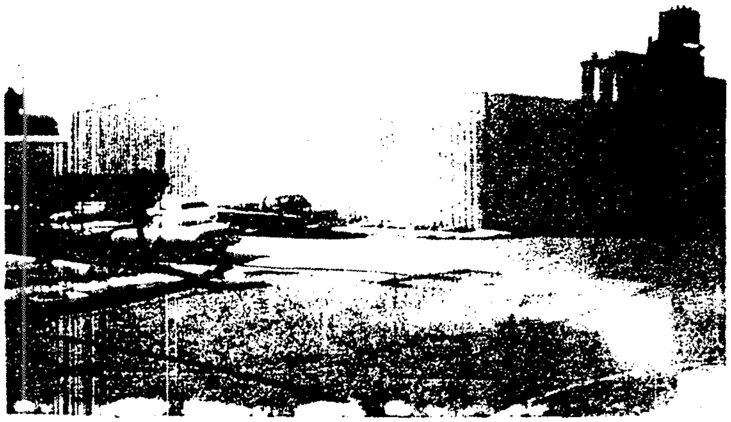

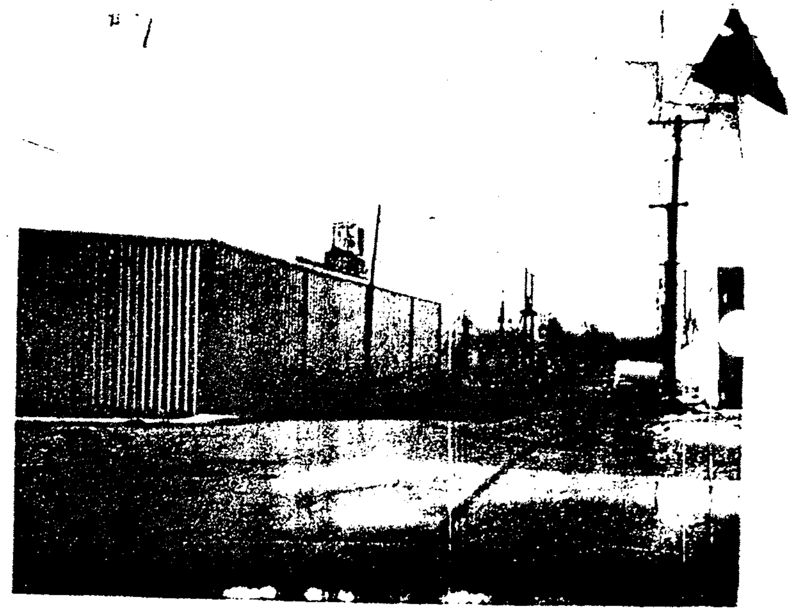

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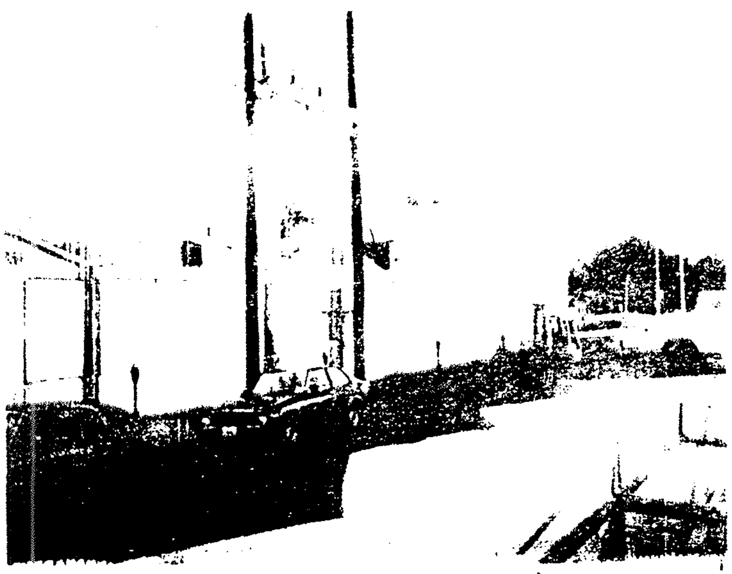
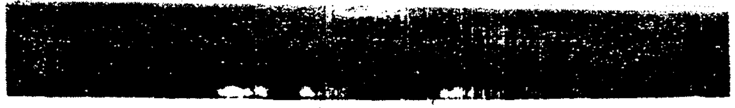


concreted area
[illegible] drums at the
[illegible] that [illegible] - need to notify



7

B 9

REFERENCE 6

Corporation

Precision Investment Castings 2425 Caroline St. / Dallas, Texas 75201 / (214) 748-9051 / Telex No. 73-0913

November 29, 1984

1-3-85
DF

Texas Department of Water Resources
P.O. Box 13087
Capital Station
Austin, Texas 78711

Attention: Minor Brooks Hibbs

Reference: TDWR No. 30395
EPA I.D. No. TXD980626071

Dear Mr. Hibbs:

This letter is to update Consolidated Casting Corporation's Notice of Registration for the Texas Department of Water Resources. The new contact person is Sam Sims and our new telephone number is (214) 871-9051.

Consolidated Casting is in the process of developing a new manufacturing process that would contain two new chemicals that are not registered with you and the Texas Department of Water Resources. They are Sodium Hydroxide, which is used in cleaning the investment casting of ceramic scrap and Hydrochloric Acid, which is used in cleaning waxed patterns. Both chemicals will be disposed of offsite by EPA and TDWR approved transporter and TSD facility.

If you should have any questions, feel free to contact me.

Sincerely,

CONSOLIDATED CASTING CORPORATION

Sam Sims

Sam Sims
Corporate Safety Manager

SS/vlp

REFERENCE 7

RECORD OF COMMUNICATION

Reference 07

TYPE:	Phone Call	**DATE:**	04/12/95	**TIME:**	3:40 p.m.

TO: John Hopkins, Consolidated Casting Corp., (214) 241-2161.

FROM: Leticia Ayala, TAT, Ecology and Environment (214) 220-0318. Jo for La

SUBJECT: Consolidated Casting Corp.

SUMMARY OF COMMUNICATION:

Mr. Hopkins stated that his supervisor gave him information indicating that the property at 2425 Caroline St. had been sold in January of 1984 to Heinline Investments, a company in the Netherlands. He did not believe that they have an office in Dallas.

AFFIDAVIT OF EXCLUSION FROM HAZARDOUS WASTE PERMITTING REQUIREMENT

40444

Registration No. 30395

Application No. 40444
(Dept. Use Only)

Facility Name Consolidated Castings Corporation

County of Dallas

JOE E. HULL being duly sworn, deposes and says:

I am Corporate Safety Administrator of Consolidated Castings Corporation
Title (Owner or Principal Officer) Facility Owner
2425 Caroline Street, Dallas, Texas
and Address

This affidavit is being executed for the purpose of notifying the Executive Director of the Texas Department of Water Resources that the named facility does not require a hazardous waste permit because:

Check appropriate box(es):

[ ] No hazardous waste is stored, processed or disposed on-site

[XXX] The facility qualifies for the "Accumulation Time" storage exclusion of Texas Administrative Code, Section 335.69

[ ] The facility qualifies for the "Small Quantity Generator" exclusion of Texas Administrative Code, Section 335.2(e)

[XXX] The facility qualifies for the "Elementary Neutralization Unit" exclusion of Texas Administrative Code, Section 335.2(f)

[ ] The facility qualifies for the "Wastewater Treatment Unit" exclusion of Texas Administrative Code, Section 335.2(f)

[ ] Other (Explain with an attachment and reference TDWR rule)

Joe E Hull
Signature

Sworn to before me this 21st day of Feb, 1986.

[signature]
Notary Public in and for

Dallas County, TX

My commission expires 6/10/89

REFERENCE 9

Texas Water Commission

INTEROFFICE MEMORANDUM

TO : ~~Cesar Farias~~ Rex Coffman

DATE: 7/29/86

THRU : Ray Austin, Assistant Chief, Hazardous and Solid Waste Permits Section

FROM : Sam Gavande

ACTION	YES	NO
Reg. Req'd		X
Reg. Incomplete		X
Permit Req'd		X

SUBJECT: Hazardous Waste Permit Exclusion Review
Consolidated Casting Corp. Reg. No 30395, Application No. 4044

A hazardous waste permit is not required because the applicant meets the following requirements:

- X 90-day storage
- ___ small quantity generator
- ___ wastewater treatment unit
- X elementary neutralization unit
- ___ other

- ___ waste is non-hazardous because
- ___ delisted
- ___ mining activity
- ___ fossil fuel combustion
- ___ chromium III
- ___ cement kiln dust
- ___ discarded wood and wood products

COMMENTS: The Company stores sodium hydroxide residues in drum on a less-than-90 days storage basis. Other materials (hydrochloric acid and spent sodium hydroxide solution) are neutralized through a controlled mixture in an elementary neutralization unit.
TWC District 4 report indicated that the applicant is in compliance with the regulations and strongly supported applicant's request that these facilities qualify for the "Accumulation Time Storage" exclusion (TAC sec. 335.69) and for the "Elementary Neutralization Unit" exclusion (TAC sec. 335.2 (f)). Review of the files indicate that the applicant has not stored, processed or disposed on-site any hazardous waste in such a manner as to require a hazardous waste permit.

SAG

This is an administrative review worksheet based upon available information and not a certification of actual conditions at the facility.

OK RHA 8-5-86

REFERENCE 10

30395

TEXAS WATER COMMISSION

August 29, 1986

Mr. Joe E. Hull
Corporate Safety Administrator
Consolidated Castings Corporation
P.O. Box 29242
Dallas, Texas 75229

Re: Consolidated Castings Corp. - Application No. 40444
Registration No. 30395 - Dallas, Texas Site

Dear Mr. Hull:

We have reviewed Part A - Facility Background Information for the above-referenced site and also the Affidavit of Exclusion which was recently submitted for the purpose of withdrawing the hazardous waste permit application from further consideration in accordance with the exclusion claimed.

Based on our review of Part A and the Affidavit of Exclusion, the application for a hazardous waste permit has been withdrawn. We are retaining certain portions of the Part A for incorporation into your solid waste registration file.

If we may be of further assistance, please do not hesitate to contact Ray H. Austin at AC512/463-8185.

Sincerely,

Minor Brooks Hibbs

Minor Brooks Hibbs, Chief
Permits Section
Hazardous and Solid Waste Division

RHA:af
cc: TWC District 4 Office - Duncanville
TXD980626071

REFERENCE 11

Texas Water Commission

INTEROFFICE MEMORANDUM

TO : BILL BROWN, Field Operations Liaison
Hazardous and Solid Waste Division

DATE: February 7, 1986

THRU :

FROM : TIM SEWELL, Environmental Quality Specialist, District 4

SUBJECT: Consolidated Casting Corporation - Dallas, Texas
Registration No. 30395

On January 16, 1986, the writer met with Mr. Sam Sims, Personnel Manager, Mr. Joe Hull, Safety Administrator, and Mr. Bill Carnes, Plant Manager and conducted an annual industrial solid waste compliance inspection.

The referenced facility manufactures precision metal castings.

The company submitted an EPA Part "A" Permit Application on November 7, 1980. To date, no Affidavit of Exclusion has been submitted to the Commission.

Although this facility has not submitted the required Affidavit of Exclusion required to withdraw the referenced EPA Part "A" Permit Application, records indicate that the company has never operated as an interim status facility. In the writer's opinion, this facility should be regulated as a 90-day generator pending the submission of the referenced affidavit.

COMMENTS:

Section A - #4:

Hydrochloric acid (Waste #006) has never been generated as a hazardous waste. It is utilized as a product within the elementary neutralization system to neutralize sodium hydroxide solution prior to disposal in the City of Dallas sanitary sewerage system. Also, sodium hydroxide solution (Waste #007) should be described as a sludge with the Texas Waste Code # of 943210. The referenced waste is placed into 55-gallon drums as a wet sludge containing ceramic material (Class III) and sodium hydroxide (Class IH). All waste is allowed to evaporate, leaving a hard, dry sludge material. The drums are then capped and removed to the drum storage area. Waste disposition should remain on-site/off-site.

Section A #5:

On-site waste management facility #02 (tank) is an elementary neutralization unit and should be inactive.

The new facility contact person is Joe Hull; phone (214)241-2161. The new facility mailing address is Consolidated Casting Corporation, P.O. Box 29242, Dallas, Texas 75229.

General Facilities Checklist:

Section B #1 - #4:

The facility does not maintain an adequate personnel training program or the required training records. As of this inspection the referenced program is in outline form only and no on-the-job training has been documented.

Section D #2:

The facility does not maintain an adequate contingency plan. As of this inspection, the referenced plan is in outline form only. Revisions should include the addresses and telephone numbers of the emergency coordinators, the locations of spill control equipment and additional detailed information regarding specific emergency response procedures. Also, copies of this contingency plan have not been submitted to the local authorities as required.

This is reported for your information.

TS:bb

APPROVED [signature] SIGNED Tim Sewell

REFERENCE 12

POLLUTI_ON CONTROL S_ERVICES

435 Isom Rd., Suite 228
San Antonio, Texas 78216
(210) 340-0343 • Fax (210) 344-5407
1-800-880-4616

Enmvironmental Support Services
Date Received: 06/09/94 Time Received: 0915
Report Date: 06/17/94

PCS Lab #	ESS Sample No.	Date Taken	Time Taken	Pb/AA Result mg/kg	Prec	Lim	LCL	Rec	UCL
36596	3-1-6	06/07/94	0915	53.0	0	21.0	69.0	106	121.4
36597	3-1-12	06/07/94	0927	24.4	0	21.0	69.0	106	121.4
36598	3-1-18	06/07/94	0932	9.95	0	21.0	69.0	106	121.4
36599	3-1-24	06/07/94	0937	14.6	0	21.0	69.0	106	121.4
36600	3-2-6	06/07/94	1009	14.8	0	21.0	69.0	106	121.4
36601	3-2-12	06/07/94	1018	13.2	0	21.0	69.0	106	121.4
36602	3-2-18	06/07/94	1025	15.0	0	21.0	69.0	106	121.4
36603	3-2-24	06/07/94	1029	8.33	0	21.0	69.0	106	121.4
36604	3-3-6	06/07/94	1105	89.7	0	21.0	69.0	106	121.4
36605	3-3-12	06/07/94	1121	27.8	0	21.0	69.0	106	121.4
36606	3-3-18	06/07/94	1128	10.0	0	21.0	69.0	100	121.4
36607	3-3-24	06/07/94	1133	11.3	0	21.0	69.0	100	121.4
36608	3-4-6	06/07/94	1216	118	0	21.0	69.0	100	121.4
36609	3-4-12	06/07/94	1223	17.9	0	21.0	69.0	100	121.4
36610	3-4-18	06/07/94	1229	15.1	0	21.0	69.0	100	121.4
36611	3-4-24	06/07/94	1233	19.1	0	21.0	69.0	100	121.4
36612	3-5-6	06/07/94	1242	138	0	21.0	69.0	100	121.4
36613	3-5-12	06/07/94	1255	33.1	0	21.0	69.0	100	121.4
36614	3-5-18	06/07/94	1259	19.6	0	21.0	69.0	100	121.4
36615	3-5-24	06/07/94	1303	19.3	0	21.0	69.0	100	121.4

Chuck Wallgren

Chuck Wallgren

P O L L U T I O N   C O N T R O L   S E R V I C E S

435 Isom Road, Suite 228   San Antonio, TX 78216   (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32419**
Sample ID: TII-1	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1432	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	**SAMPLE RESULT**	**UNITS**	**DATE ANALYZED**	**METHOD USED**
pH	9.0	S.U.	11/23/93	9045
Cadmium	2.63	mg/kg	11/24/93	200.7/6010
Chromium	9.93	mg/kg	11/24/93	200.7/6010
Copper	7.45	mg/kg	11/24/93	200.7/6010
Lead	39.7	mg/kg	11/24/93	239.1/7420
Nickel	23.2	mg/kg	11/24/93	249.1/7520
Zinc	24.3	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	**M.D.L.**	**PRECISION**	**LIMIT**	**LCL**	**RECOVERY**	**UCL**
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	7	15.6	79.6	93	109.7
Chromium	0.5	12	28.1	63.1	96	133.5
Copper	0.5	6	10.0	76.9	103	119.1
Lead	2.0	3	21.0	69.0	104	121.4
Nickel	1.0	5	40.9	72.3	101	123.1
Zinc	0.5	2	33.5	86.3	106	108.8

All QA data reported as %

Approved by:

Chuck Wallgren
Owner

POLLUT⁻ON CONTROL SE⁻VICES

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32420**
Sample ID: TII-2	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1443	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
pH	8.8	S.U.	11/23/93	9045
Cadmium	3.01	mg/kg	11/24/93	200.7/6010
Chromium	16.0	mg/kg	11/24/93	200.7/6010
Copper	17.5	mg/kg	11/24/93	200.7/6010
Lead	59.8	mg/kg	11/24/93	239.1/7420
Nickel	23.6	mg/kg	11/24/93	249.1/7520
Zinc	63.5	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	7	15.6	79.6	93	109.7
Chromium	0.5	12	28.1	63.1	96	133.5
Copper	0.5	6	10.0	76.9	103	119.1
Lead	2.0	3	21.0	69.0	104	121.4
Nickel	1.0	5	40.9	72.3	101	123.1
Zinc	0.5	2	33.5	86.3	106	108.8

All QA data reported as %

Approved by:
Chuck Wallgren

Chuck Wallgren
Owner

POLLUT ON CONTROL SE`VICES

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32421**
Sample ID: TII-3	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1501	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
pH	8.4	S.U.	11/23/93	9045
Cadmium	3.37	mg/kg	11/24/93	200.7/6010
Chromium	20.8	mg/kg	11/24/93	200.7/6010
Copper	21.8	mg/kg	11/24/93	200.7/6010
Lead	59.4	mg/kg	11/24/93	239.1/7420
Nickel	36.5	mg/kg	11/24/93	249.1/7520
Zinc	90.6	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	7	15.6	79.6	93	109.7
Chromium	0.5	12	28.1	63.1	96	133.5
Copper	0.5	6	10.0	76.9	103	119.1
Lead	2.0	3	21.0	69.0	104	121.4
Nickel	1.0	5	40.9	72.3	101	123.1
Zinc	0.5	2	33.5	86.3	106	108.8

All QA data reported as %

Approved by:
Chuck Wallgren

Chuck Wallgren
Owner

POLLUTION CONTROL SERVICES

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32422**
Sample ID: TII-4	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1512	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
pH	8.5	S.U.	11/23/93	9045
Cadmium	2.92	mg/kg	11/24/93	200.7/6010
Chromium	27.2	mg/kg	11/24/93	200.7/6010
Copper	32.7	mg/kg	11/24/93	200.7/6010
Lead	64.3	mg/kg	11/24/93	239.1/7420
Nickel	37.0	mg/kg	11/24/93	249.1/7520
Zinc	90.1	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	7	15.6	79.6	93	109.7
Chromium	0.5	12	28.1	63.1	96	133.5
Copper	0.5	6	10.0	76.9	103	119.1
Lead	2.0	3	21.0	69.0	104	121.4
Nickel	1.0	5	40.9	72.3	101	123.1
Zinc	0.5	2	33.5	86.3	106	108.8

All QA data reported as %

Approved by:
Chuck Wallgren
Chuck Wallgren
Owner

P O L L U T ' O N   C O N T R O L   S Γ ٦ V I C E S

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32423**
Sample ID: TII-5	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1526	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	**SAMPLE RESULT**	**UNITS**	**DATE ANALYZED**	**METHOD USED**
pH	9.0	S.U.	11/23/93	9045
Cadmium	3.53	mg/kg	11/24/93	200.7/6010
Chromium	26.4	mg/kg	11/24/93	200.7/6010
Copper	20.4	mg/kg	11/24/93	200.7/6010
Lead	94.5	mg/kg	11/24/93	200.7/6010
Nickel	35.1	mg/kg	11/24/93	200.7/6010
Zinc	92.5	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	**M.D.L.**	**PRECISION**	**LIMIT**	**LCL**	**RECOVERY**	**UCL**
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	1	15.6	79.6	85	109.7
Chromium	0.5	6	28.1	63.1	78	133.5
Copper	0.5	3	10.0	76.9	98	119.1
Lead	1.0	6	21.0	69.0	101	121.4
Nickel	1.0	<1	40.9	72.3	97	123.1
Zinc	0.5	8	33.5	86.3	100	108.8

All QA data reported as %

Approved by:

Chuck Wallgren

Chuck Wallgren
Owner

P O L L U T I O N   C O N T R O L   S E R V I C E S

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32424**
Sample ID: TII-6	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1535	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
pH	8.5	S.U.	11/23/93	9045
Cadmium	3.33	mg/kg	11/24/93	200.7/6010
Chromium	7.84	mg/kg	11/24/93	200.7/6010
Copper	16.6	mg/kg	11/24/93	200.7/6010
Lead	131	mg/kg	11/24/93	200.7/6010
Nickel	25.3	mg/kg	11/24/93	200.7/6010
Zinc	53.9	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	1	15.6	79.6	85	109.7
Chromium	0.5	6	28.1	63.1	78	133.5
Copper	0.5	3	10.0	76.9	98	119.1
Lead	1.0	6	21.0	69.0	101	121.4
Nickel	1.0	<1	40.9	72.3	97	123.1
Zinc	0.5	8	33.5	86.3	100	108.8

All QA data reported as %

Approved by:

Chuck Wallgren
Owner

POLLUTION CONTROL SERVICES

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32425**
Sample ID: TII-7	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1542	**Report Date:** 11/27/93

RUSH

	TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
	pH	8.7	S.U.	11/23/93	9045
	Cadmium	4.57	mg/kg	11/24/93	200.7/6010
	Chromium	10.7	mg/kg	11/24/93	200.7/6010
	Copper	33.0	mg/kg	11/24/93	200.7/6010
*	Lead	1,393	mg/kg	11/24/93	200.7/6010
	Nickel	22.3	mg/kg	11/24/93	200.7/6010
	Zinc	78.2	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	1	15.6	79.6	85	109.7
Chromium	0.5	6	28.1	63.1	78	133.5
Copper	0.5	3	10.0	76.9	98	119.1
Lead	1.0	6	21.0	69.0	101	121.4
Nickel	1.0	<1	40.9	72.3	97	123.1
Zinc	0.5	8	33.5	86.3	100	108.8

All QA data reported as %

Approved by:

Chuck Wallgren

Chuck Wallgren
Owner

POLLUTION CONTROL SERVICES

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REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32426**
Sample ID: TII-8	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1555	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
pH	8.7	S.U.	11/23/93	9045
Cadmium	3.96	mg/kg	11/24/93	200.7/6010
Chromium	85.5	mg/kg	11/24/93	200.7/6010
Copper	39.6	mg/kg	11/24/93	200.7/6010
Lead	142	mg/kg	11/24/93	200.7/6010
Nickel	36.6	mg/kg	11/24/93	200.7/6010
Zinc	174	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	1	15.6	79.6	85	109.7
Chromium	0.5	6	28.1	63.1	78	133.5
Copper	0.5	3	10.0	76.9	98	119.1
Lead	1.0	6	21.0	69.0	101	121.4
Nickel	1.0	<1	40.9	72.3	97	123.1
Zinc	0.5	8	33.5	86.3	100	108.8

All QA data reported as %

Approved by:

Chuck Wallgren
Owner

POLLUTION CONTROL SERVICES

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32427**
Sample ID: TII-9	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1603	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	**SAMPLE RESULT**	**UNITS**	**DATE ANALYZED**	**METHOD USED**
pH	8.5	S.U.	11/23/93	9045
Cadmium	4.13	mg/kg	11/24/93	200.7/6010
Chromium	5.01	mg/kg	11/24/93	200.7/6010
Copper	9.60	mg/kg	11/24/93	200.7/6010
Lead	33.4	mg/kg	11/24/93	200.7/6010
Nickel	21.8	mg/kg	11/24/93	200.7/6010
Zinc	43.4	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	**M.D.L.**	**PRECISION**	**LIMIT**	**LCL**	**RECOVERY**	**UCL**
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	1	15.6	79.6	85	109.7
Chromium	0.5	6	28.1	63.1	78	133.5
Copper	0.5	3	10.0	76.9	98	119.1
Lead	1.0	6	21.0	69.0	101	121.4
Nickel	1.0	<1	40.9	72.3	97	123.1
Zinc	0.5	8	33.5	86.3	100	108.8

All QA data reported as %

Approved by:

Chuck Wallgren

Chuck Wallgren
Owner

POLLUT ON CONTROL SE VICES

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32428**
Sample ID: TII-10	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1613	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
pH	9.1	S.U.	11/23/93	9045
Cadmium	2.71	mg/kg	11/24/93	200.7/6010
Chromium	3.33	mg/kg	11/24/93	200.7/6010
Copper	4.76	mg/kg	11/24/93	200.7/6010
Lead	23.8	mg/kg	11/24/93	200.7/6010
Nickel	13.2	mg/kg	11/24/93	200.7/6010
Zinc	17.6	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	1	15.6	79.6	85	109.7
Chromium	0.5	6	28.1	63.1	78	133.5
Copper	0.5	3	10.0	76.9	98	119.1
Lead	1.0	6	21.0	69.0	101	121.4
Nickel	1.0	<1	40.9	72.3	97	123.1
Zinc	0.5	8	33.5	86.3	100	108.8

All QA data reported as %

Approved by:
Chuck Wallgren
Chuck Wallgren
Owner

P O L L U T O N   C O N T R O L   S E V I C E S

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REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32429**
Sample ID: TII-11	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1625	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	**SAMPLE RESULT**	**UNITS**	**DATE ANALYZED**	**METHOD USED**
pH	8.8	S.U.	11/23/93	9045
Cadmium	2.71	mg/kg	11/24/93	200.7/6010
Chromium	5.71	mg/kg	11/24/93	200.7/6010
Copper	4.28	mg/kg	11/24/93	200.7/6010
Lead	14.3	mg/kg	11/24/93	200.7/6010
Nickel	13.3	mg/kg	11/24/93	200.7/6010
Zinc	19.0	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	**M.D.L.**	**PRECISION**	**LIMIT**	**LCL**	**RECOVERY**	**UCL**
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	1	15.6	79.6	85	109.7
Chromium	0.5	6	28.1	63.1	78	133.5
Copper	0.5	3	10.0	76.9	98	119.1
Lead	1.0	6	21.0	69.0	101	121.4
Nickel	1.0	<1	40.9	72.3	97	123.1
Zinc	0.5	8	33.5	86.3	100	108.8

All QA data reported as %

Approved by:

Chuck Wallgren

Chuck Wallgren
Owner

POLLUTION CONTROL SERVICES

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REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #:** 32430
Sample ID: TII-12	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1630	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
pH	8.5	S.U.	11/23/93	9045
Cadmium	3.79	mg/kg	11/24/93	200.7/6010
Chromium	14.6	mg/kg	11/24/93	200.7/6010
Copper	10.2	mg/kg	11/24/93	200.7/6010
Lead	38.9	mg/kg	11/24/93	200.7/6010
Nickel	21.7	mg/kg	11/24/93	200.7/6010
Zinc	48.1	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	1	15.6	79.6	85	109.7
Chromium	0.5	6	28.1	63.1	78	133.5
Copper	0.5	3	10.0	76.9	98	119.1
Lead	1.0	6	21.0	69.0	101	121.4
Nickel	1.0	<1	40.9	72.3	97	123.1
Zinc	0.5	8	33.5	86.3	100	108.8

All QA data reported as %

Approved by:

Chuck Wallgren
Owner

POLLUT ON CONTROL SE VICES

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32431**
Sample ID: TII-13	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1642	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	**SAMPLE RESULT**	**UNITS**	**DATE ANALYZED**	**METHOD USED**
pH	8.7	S.U.	11/23/93	9045
Cadmium	3.80	mg/kg	11/24/93	200.7/6010
Chromium	18.1	mg/kg	11/24/93	200.7/6010
Copper	19.0	mg/kg	11/24/93	200.7/6010
Lead	68.4	mg/kg	11/24/93	200.7/6010
Nickel	40.3	mg/kg	11/24/93	200.7/6010
Zinc	36.5	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	**M.D.L.**	**PRECISION**	**LIMIT**	**LCL**	**RECOVERY**	**UCL**
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	1	15.6	79.6	85	109.7
Chromium	0.5	6	28.1	63.1	78	133.5
Copper	0.5	3	10.0	76.9	98	119.1
Lead	1.0	6	21.0	69.0	101	121.4
Nickel	1.0	<1	40.9	72.3	97	123.1
Zinc	0.5	8	33.5	86.3	100	108.8

All QA data reported as %

Approved by:

Chuck Wallgren

Chuck Wallgren
Owner

P O L L U T I O N   C O N T R O L   S E R V I C E S

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #:** 32432
Sample ID: TII-14	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1654	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
pH	8.9	S.U.	11/23/93	9045
Cadmium	3.42	mg/kg	11/24/93	200.7/6010
Chromium	5.87	mg/kg	11/24/93	200.7/6010
Copper	6.85	mg/kg	11/24/93	200.7/6010
Lead	44.0	mg/kg	11/24/93	200.7/6010
Nickel	22.2	mg/kg	11/24/93	200.7/6010
Zinc	24.5	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	1	15.6	79.6	85	109.7
Chromium	0.5	6	28.1	63.1	78	133.5
Copper	0.5	3	10.0	76.9	98	119.1
Lead	1.0	6	21.0	69.0	101	121.4
Nickel	1.0	<1	40.9	72.3	97	123.1
Zinc	0.5	8	33.5	86.3	100	108.8

All QA data reported as %

Approved by:

Chuck Wallgren

Chuck Wallgren
Owner

POLLUTION CONTROL SERVICES

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32433**
Sample ID: TII-15	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1700	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
pH	8.7	S.U.	11/23/93	9045
Cadmium	2.74	mg/kg	11/27/93	200.7/6010
Chromium	6.40	mg/kg	11/27/93	200.7/6010
Copper	8.69	mg/kg	11/27/93	200.7/6010
Lead	225	mg/kg	11/28/93	200.7/6010
Nickel	12.8	mg/kg	11/27/93	200.7/6010
Zinc	35.2	mg/kg	11/27/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	<1	15.6	79.6	100	109.7
Chromium	0.5	3	28.1	63.1	99	133.5
Copper	0.5	2	10.0	76.9	95	119.1
Lead	1.0	2	21.0	69.0	92	121.4
Nickel	1.0	<1	40.9	72.3	103	123.1
Zinc	0.5	3	33.5	86.3	89	108.8

All QA data reported as %

Approved by:

Chuck Wallgren

Chuck Wallgren
Owner

P O L L U T   O N   C O N T R O L   S E   V I C E S

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32434**
Sample ID: TII-16	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1706	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	**SAMPLE RESULT**	**UNITS**	**DATE ANALYZED**	**METHOD USED**
pH	8.4	S.U.	11/23/93	9045
Cadmium	6.63	mg/kg	11/27/93	200.7/6010
Chromium	14.2	mg/kg	11/27/93	200.7/6010
Copper	63.5	mg/kg	11/27/93	200.7/6010
Lead	379	mg/kg	11/28/93	200.7/6010
Nickel	41.6	mg/kg	11/27/93	200.7/6010
Zinc	245	mg/kg	11/27/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	**M.D.L.**	**PRECISION**	**LIMIT**	**LCL**	**RECOVERY**	**UCL**
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	<1	15.6	79.6	100	109.7
Chromium	0.5	3	28.1	63.1	99	133.5
Copper	0.5	2	10.0	76.9	95	119.1
Lead	1.0	2	21.0	69.0	92	121.4
Nickel	1.0	<1	40.9	72.3	103	123.1
Zinc	0.5	3	33.5	86.3	89	108.8

All QA data reported as %

Approved by:

Chuck Wallgren

Chuck Wallgren
Owner

POLLUT ON CONTROL SE VICES

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32435**
Sample ID: TII-17	**Date Rec'd:** 11/23/93
Date Taken: 11/23/93	**Time Rec'd:** 2145
Time Taken: 1711	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	**SAMPLE RESULT**	**UNITS**	**DATE ANALYZED**	**METHOD USED**
pH	8.5	S.U.	11/23/93	9045
Cadmium	4.63	mg/kg	11/27/93	200.7/6010
Chromium	15.4	mg/kg	11/27/93	200.7/6010
Copper	20.2	mg/kg	11/27/93	200.7/6010
Lead	62.6	mg/kg	11/28/93	200.7/6010
Nickel	26.7	mg/kg	11/27/93	200.7/6010
Zinc	97.3	mg/kg	11/27/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	**M.D.L.**	**PRECISION**	**LIMIT**	**LCL**	**RECOVERY**	**UCL**
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	<1	15.6	79.6	100	109.7
Chromium	0.5	3	28.1	63.1	99	133.5
Copper	0.5	2	10.0	76.9	95	119.1
Lead	1.0	2	21.0	69.0	92	121.4
Nickel	1.0	<1	40.9	72.3	103	123.1
Zinc	0.5	3	33.5	86.3	89	108.8

All QA data reported as %

Approved by:

Chuck Wallgren

Chuck Wallgren
Owner

POLLUTION CONTROL SERVICES

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32501**
Sample ID: T2-18	**Date Rec'd:** 11/24/93
Date Taken: 11/24/93	**Time Rec'd:** 2000
Time Taken: 1629	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	SAMPLE RESULT	UNITS	DATE ANALYZED	METHOD USED
pH	8.4	S.U.	11/23/93	9045
Cadmium	2.67	mg/kg	11/24/93	200.7/6010
Chromium	25.6	mg/kg	11/24/93	200.7/6010
Copper	22.0	mg/kg	11/24/93	200.7/6010
Lead	68.7	mg/kg	11/24/93	200.7/6010
Nickel	26.7	mg/kg	11/24/93	200.7/6010
Zinc	63.2	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

TEST DESCRIPTION	M.D.L.	PRECISION	LIMIT	LCL	RECOVERY	UCL
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	<1	15.6	79.6	92	109.7
Chromium	0.5	<1	28.1	63.1	110	133.5
Copper	0.5	2	10.0	76.9	103	119.1
Lead	1.0	2	21.0	69.0	107	121.4
Nickel	1.0	1	40.9	72.3	108	123.1
Zinc	0.5	9	33.5	86.3	106	108.8

All QA data reported as %

Approved by:

Chuck Wallgren

Chuck Wallgren
Owner

P O L L U T I O N   C O N T R O L   S E R V I C E S

435 Isom Road, Suite 228 San Antonio, TX 78216 (210) 340-0343

REPORT OF SAMPLE ANALYSIS

To: Karl Warning
Environmental Support Services
1701 N. Greenville Suite 404
Richardson, TX 75081

CLIENT INFORMATION	*LABORATORY INFORMATION*
Project Name: ASHLAND	**PCS Sample #: 32502**
Sample ID: T2-19	**Date Rec'd:** 11/24/93
Date Taken: 11/24/93	**Time Rec'd:** 2000
Time Taken: 1644	**Report Date:** 11/27/93

RUSH

TEST DESCRIPTION	**SAMPLE RESULT**	**UNITS**	**DATE ANALYZED**	**METHOD USED**
pH	8.9	S.U.	11/23/93	9045
Cadmium	2.83	mg/kg	11/24/93	200.7/6010
Chromium	8.62	mg/kg	11/24/93	200.7/6010
Copper	19.2	mg/kg	11/24/93	200.7/6010
Lead	583	mg/kg	11/24/93	200.7/6010
Nickel	14.9	mg/kg	11/24/93	200.7/6010
Zinc	230	mg/kg	11/24/93	200.7/6010

QUALITY ASSURANCE DATA

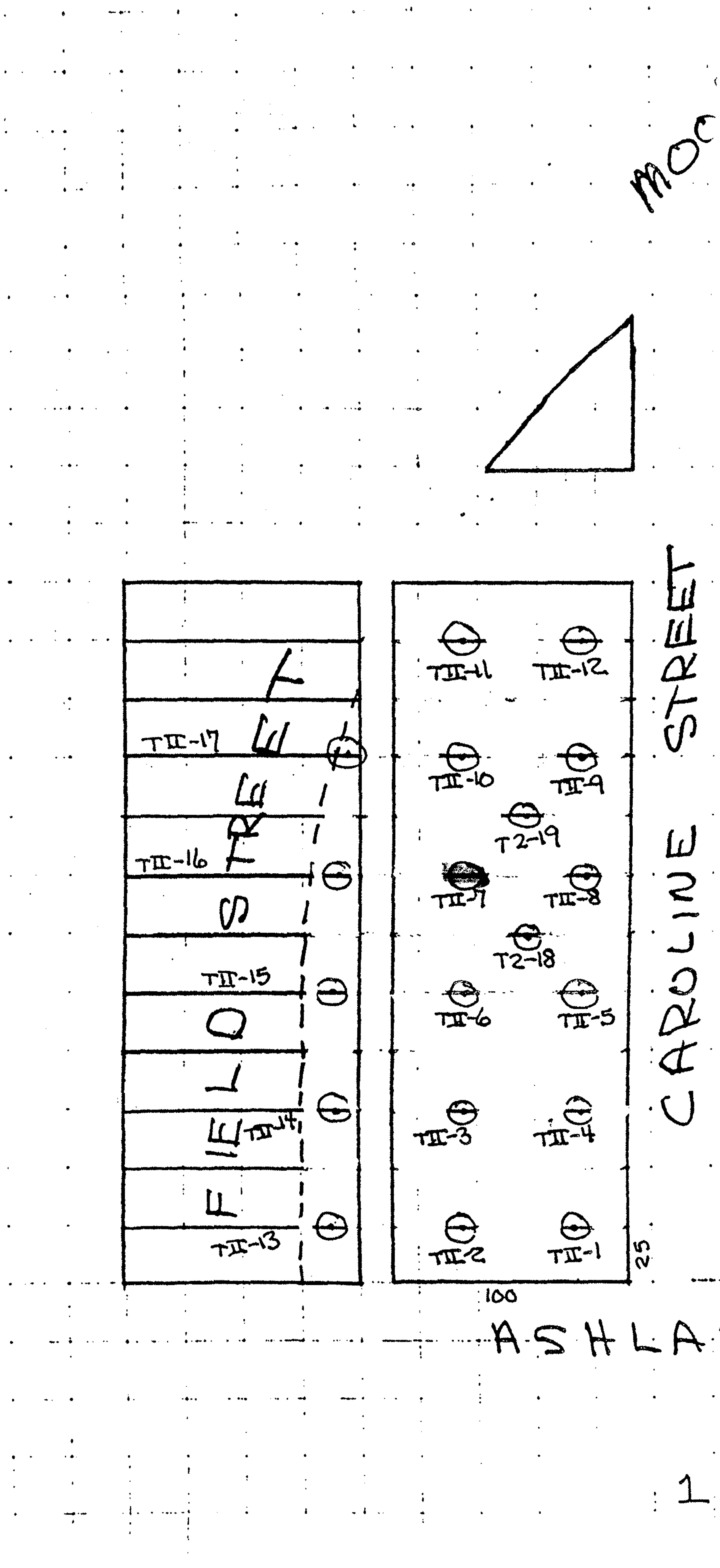
TEST DESCRIPTION	**M.D.L.**	**PRECISION**	**LIMIT**	**LCL**	**RECOVERY**	**UCL**
pH	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	0.2	<1	15.6	79.6	92	109.7
Chromium	0.5	<1	28.1	63.1	110	133.5
Copper	0.5	2	10.0	76.9	103	119.1
Lead	1.0	2	21.0	69.0	107	121.4
Nickel	1.0	1	40.9	72.3	108	123.1
Zinc	0.5	9	33.5	86.3	106	108.8

All QA data reported as %

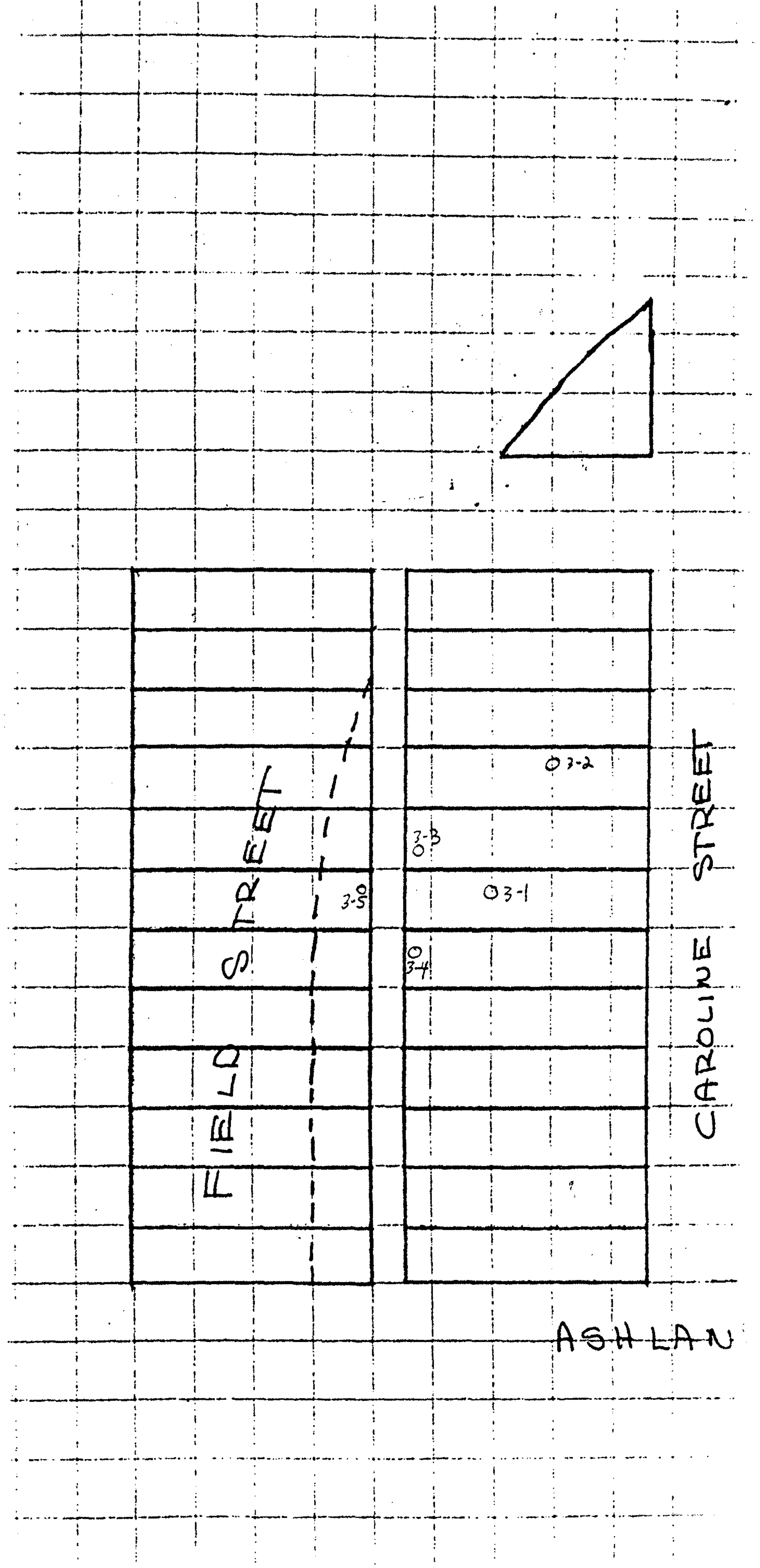
Approved by:

Chuck Wallgren
Owner

Sample Locations
November 1993



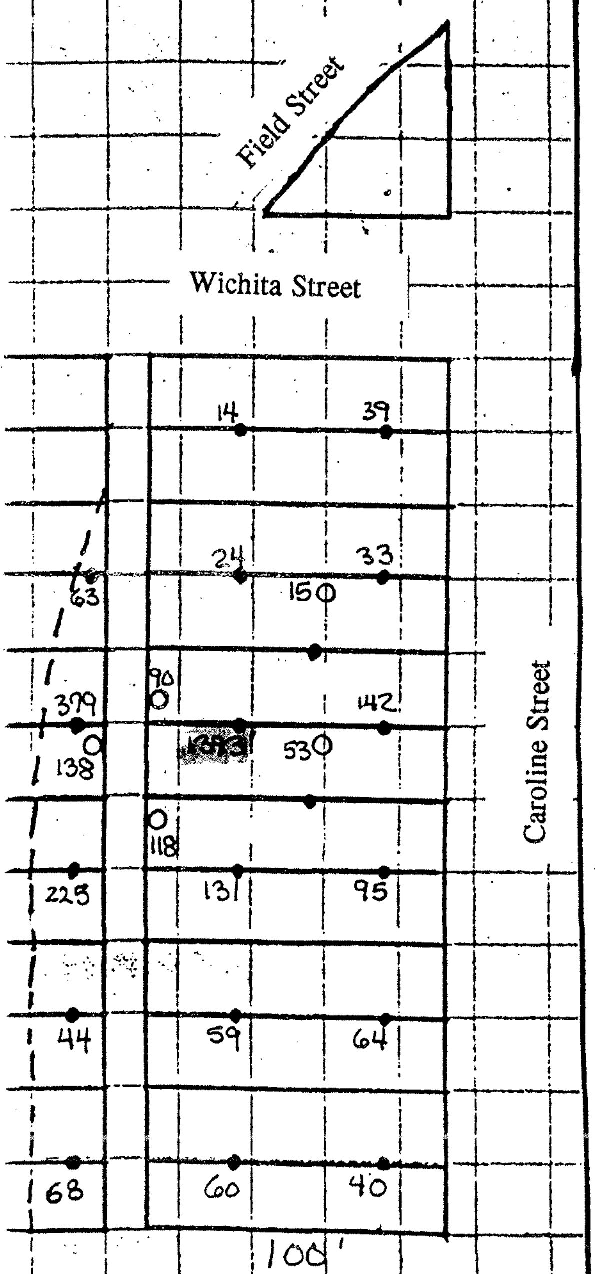
Sample Locations
May - June, 1994



LEAD VALUES AT 6 INCHES

● NOVEMBER 1993 SAMPLES

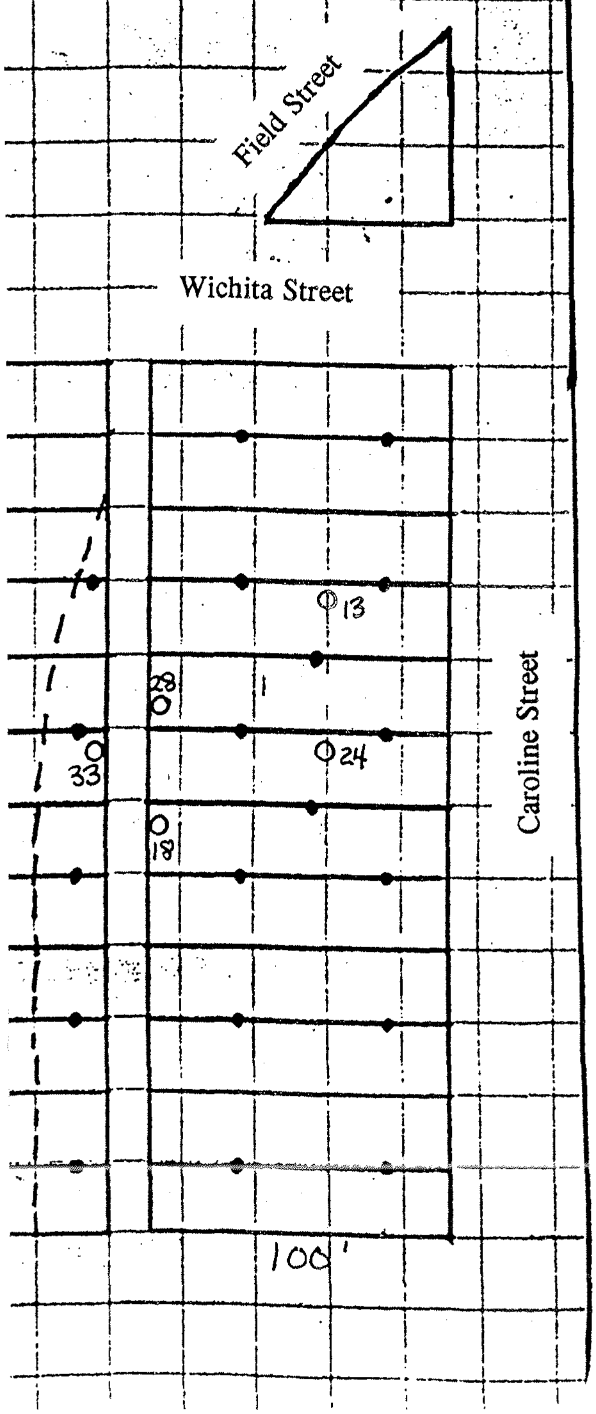
○ MAY-JUNE 1994 SAMPLES



LEAD VALUES AT 12 INCHES

● NOVEMBER 1993 SAMPLES

○ MAY-JUNE 1994 SAMPLES



LEAD VALUES AT 18 INCHES

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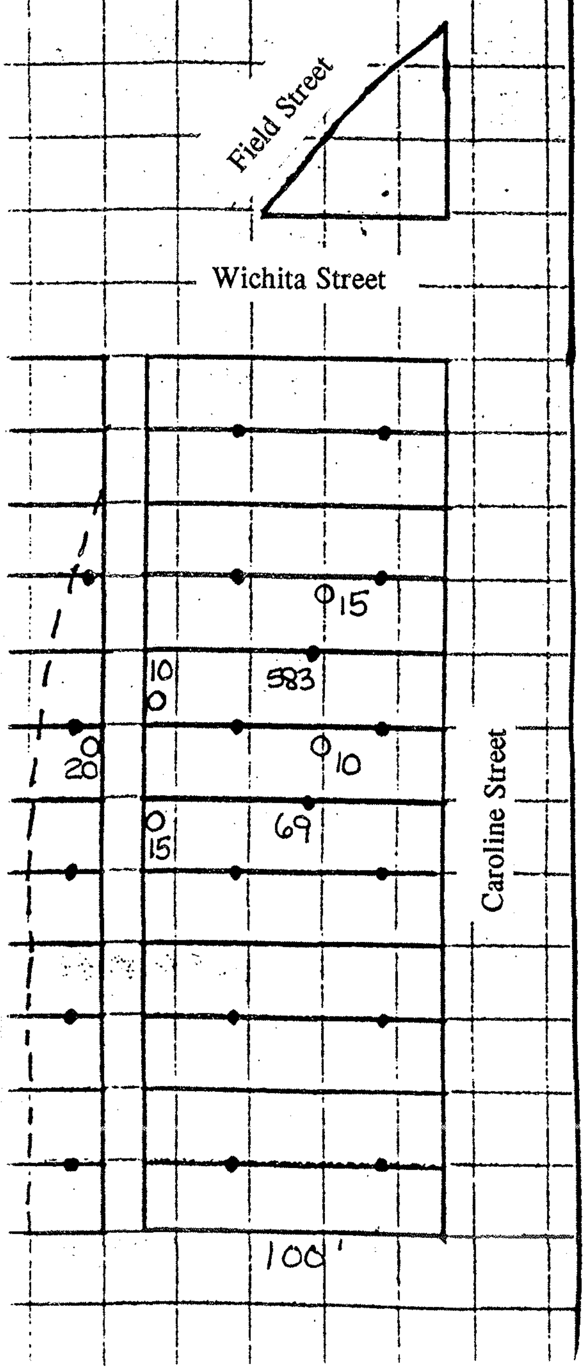
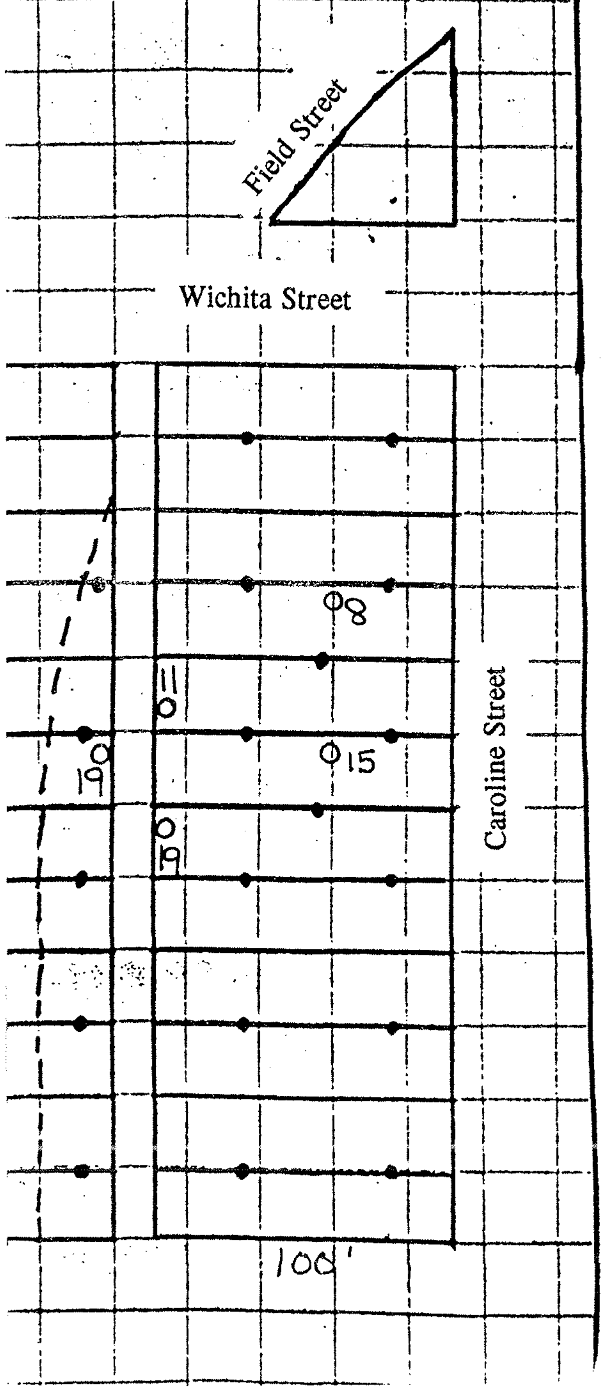


LEAD VALUES AT 24 INCHES

● NOVEMBER 1993 SAMPLES

○ MAY-JUNE 1994 SAMPLES



REFERENCE 13

Report 269

OCCURRENCE, AVAILABILITY, AND CHEMICAL QUALITY OF GROUND WATER IN THE CRETACEOUS AQUIFERS OF NORTH-CENTRAL TEXAS

Volume 1

TEXAS DEPARTMENT OF WATER RESOURCES

April 1982

purposes, the Trinity Group aqu... yielded over 66,000 acre-feet (81.4 hm^3) of water to wells in the study area. The total average annual ground-water availability for the Trinity Group in the study area to the year 2030 is 63,000 acre-feet (77.7 hm^3) which includes an annual effective recharge of 51,000 acre-feet (62.9 hm^3). The large discrepancy in pumpage and effective recharge emphasizes the fact that the Trinity Group aquifer is overdeveloped. Further development of ground water at present pumpage rates will continue to lower the piezometric surface and deplete storage that cannot be replenished.

The Woodbine Group provides water for all purposes to approximately half of the counties covered in this study. The group is divided into three water-bearing parts—upper, middle, and lower—which vary considerably in productivity and quality. The upper Woodbine contains water of extremely poor quality in downdip locales and contains excessive iron concentrations along the outcrop. In general, water from this part is sealed off in all wells except those used for irrigation, where iron content is not important. The middle Woodbine generally contains water of good quality; however, high iron concentrations occur in some areas. Yields are moderate and water from this part is utilized in most wells. The lower Woodbine is the most productive and contains good quality water. High yields are characteristic in this part from the outcrop downdip to the slightly saline limit which is approximately 2,000 feet (610 m) below land surface.

Total thickness of the Woodbine ranges from 230 feet (70 m) near the outcrop to 700 feet (213 m) near the downdip limit of fresh to slightly saline water. The net sand thickness is less than 350 feet (107 m) with most of this occurring in the lower Woodbine. The average artesian coefficient of storage is 0.00015 where the Woodbine is under artesian conditions, and the specific yield is about 15 percent. Transmissibility values in downdip areas average 4,700 (gal/d)/ft or 58,400 (l/d)/m and permeability values average 44 $(gal/d)/ft^2$ or 1,790 $(l/d)/m^2$.

Chemical quality deteriorates rapidly in well depths below 1,500 feet (457 m). In areas between the outcrop and this depth, quality is considered very good overall as long as ground water from the upper Woodbine is sealed off. Water is classified as soft with most chemical analyses showing total hardness as calcium carbonate below 60 mg/l.

Yields of wells completed in the Woodbine averaged 160 gal/min (10 l/s) with measured quantities of as much as 1,170 gal/min (74 l/s). The average specific capacity calculated from production tests was 2.9 (gal/min)/ft or 0.60 (l/s)/m. Wells operating under artesian conditions are experiencing declines in water levels. Declines of a few feet (less than a meter) per year to over 10 feet (3 m) per year have been recorded. Declines in the Sherman area (Grayson County) are steepest and are depicted as a cone of depression on water-level maps. The steady decline is a result of low permeabilities in water-bearing sands and large withdrawals by ground-water users.

Approximately 16,000 acre-feet (19.1 hm^3) of ground water was pumped from the Woodbine in 1976 from wells in the study region. Public supply pumpage accounted for 8,560 acre-feet (10.6 hm^3) in 1976, while industrial and irrigation users added over 2,500 acre-feet (3.08 hm^3) each to this quantity. The average annual ground-water availability as effective recharge is 24,500 acre-feet (30.2 hm^3) over the entire aquifer. This maximum quantity is based on uniform use along the entire aquifer after water levels have been lowered to a maximum of 400 feet (122 m) below the land surface. Water levels will continue to decline in heavily pumped areas. However, at the present withdrawal rate, when considered collectively, the aquifer is in no immediate danger of overdevelopment.

Information was collected on several minor water-bearing formations within the study region and all pertinent data have been included in this report. The minor aquifers included in the study are the Paleozoic rocks undifferentiated, Blossom Sand, Nacatoch Sand, and alluvium. The primary use of these aquifers is for domestic and livestock purposes although several municipalities pump from them. The Paleozoic rocks provide water mainly in Montague County with smaller usage in Wise, Parker, and Hood Counties. The Blossom and Nacatoch Sands of Cretaceous age provide ground water to wells along the eastern portion of the study area. Minor amounts of water are pumped from the alluvium along the Red River for irrigation and livestock needs.

Wells completed in the Nacatoch and Blossom Sands produce up to 500 gal/min (32 l/s) for public supply use in local areas. In regions of heavy pumpage such as around Clarksville in Red River County and Commerce in Hunt County, water levels are declining steadily. A total of 2,700 acre-feet (3.33 hm^3) of water was pumped from these aquifers in 1976 for public supply and industrial purposes. Domestic and livestock usage probably exceeds this amount. The estimated average annual amount of ground water available as effective recharge from both aquifers is about 1,620 acre-feet (2 hm^3). Annual water-level declines are a direct result of the deficit between pumpage and effective recharge.

Table 1.—Stratigraphic Units and Their Water-bearing Properties

Yield, in gallons per minute (gal/min): small, less than 100 gal/min; moderate, 100—1,000 gal/min; large, more than 1,000 gal/min.

Era	System	Series	Group	Stratigraphic units	Approximate maximum thickness (feet)	Character of rocks	Water-bearing characteristics
Cenozoic	Quaternary	Recent		Alluvium	75	Sand, silt, clay and gravel.	Yields small to large amounts of water to wells along the Red River
		Pleistocene		Fluviatile terrace deposits			
	Tertiary	Eocene	Wilcox		100	Fine to medium sand with silt and clay	Yields small quantities of water to wells in the eastern part of the area.
		Paleocene	Midway		150	Gray, calcareous clay, in part silty to sandy	Do.
Mesozoic	Cretaceous	Gulf	Navarro	Kemp Clay Corsicana Marl	300	Fossiliferous clay and hard limy marl	Not known to yield water to wells in the area.
				Nacatoch Sand	500	Fine sand and marl, fossiliferous	Yields small to moderate quantities of water near the outcrop.
			Taylor	Marlbrook Marl Pecan Gap Chalk Wolfe City - Ozan Formations	1,500	Clay, marl, mudstone, and chalk	Yields small quantities of water to shallow wells.
			Austin	Gober Chalk Brownstown Marl Blossom Sand Bonham Formation	700	Chalk, limestone, and marl; fine to medium sand, fossiliferous	Yields small to moderate quantities of water to wells in the northeastern part of the area; very limited as an aquifer.
			Eagle Ford		650	Shale with thin beds of sandstone and limestone	Yields small quantities of water to shallow wells.
			Woodbine		700	Medium to coarse iron sand, sandstone, clay and some lignite	Yields moderate to large quantities of water to municipal, industrial and irrigation wells.
		Comanche	Washita	Grayson Marl - Mainstreet Limestone Pawpaw Formation - Weno Limestone - Denton Clay Fort Worth - Duck Creek Kiamichi Formation	1,000	Fossiliferous limestone, marl, and clay; some sand near top	Yields small quantities of water to shallow wells.
			Fredericksburg	Edwards Limestone Comanche Peak Formation | Goodland Limestone Walnut Formation	250	Limestone, clay, marl, shale, and shell agglomerates	Do.
			Trinity	Antlers Formation: Paluxy Formation	900: 400	Fine sand, sandy shale, and shale	Yields small to moderate quantities of water to wells.
				Antlers Formation: Glen Rose Formation	900: 1,500	Limestone, marl, shale, and anhydrite	Yields small quantities of water in localized areas.
				Antlers Formation: Twin Mountains Formation	900: 1,000	Fine to coarse sand, shale, clay, and basal gravel and conglomerate	Yields moderate to large quantities of water to wells.
Paleozoic				Paleozoic rocks undifferentiated		Sandstone, limestone, shale and conglomerate	Yields small quantities of water in the western part of the area.

silty clays, and siliceous conglomerates of chert, quartzite, and quartz pebbles.

The Twin Mountains consists of a basal conglomerate of chert and quartz, grading upward into coarse- to fine-grained sand interspersed with varicolored shale. The sand strata are more thickly bedded in the lower part of the formation than in the upper and middle and can be correlated to the Hosston Formation to the south. It is in this lower massive sand that the majority of wells are completed. Varicolored shale and clay, predominantly red, occur throughout the formation. The shale grades vertically and laterally into sandy shale and sand, making correlations over long distances almost impossible. The upper part of the Twin Mountains also contains a considerable percentage of sand and sandstone strata but less than the lower part due to the increased interbedding of shale and clay. Few wells are developed in the upper part of the formation.

Beds dip toward the east from 30 feet per mile (5.7 m/km) near the outcrop to 95 feet per mile (18 m/km) near the downdip limit of fresh to slightly saline water as illustrated on the geologic cross sections and Figure 19 which shows the approximate altitude of the top of the Twin Mountains. Thickness varies considerably over the study region, generally increasing downdip and ranging from less than 200 feet (61 m) near the outcrop to 860 feet (262 m) in oil test HR-33-28-401. However, data on cross section C-C' (Figure 37) indicate that maximum thickness at the downdip limit of fresh to slightly saline water should reach approximately 1,000 feet (305 m).

The Twin Mountains Formation is the most important source of ground water for a large part of the study region and yields moderate to large quantities of fresh to slightly saline water to municipal and industrial wells. In 1974, over 41,000 acre-feet (50.6 hm^3) of water was pumped from this aquifer for municipal and industrial uses.

Paluxy Formation

The Paluxy Formation is the upper member of the Trinity Group south of the Glen Rose pinch-out. It crops out in Hood, Parker, Tarrant, and Wise Counties and forms the surface of the Western Cross Timbers belt. The dip is easterly at an average rate of 30 feet per mile (5.7 m/km) near the outcrop, increasing to 80 feet per mile (15.2 m/km) near the downdip limit of fresh to slightly saline water as illustrated on the geologic sections and on Figure 18, which shows the approximate altitude of the top of the Paluxy and the extent of the outcrop in the study area.

The Paluxy is composed predominantly of fine- to coarse-grained, friable, homogeneous, white quartz sand interbedded with sandy, silty, calcareous, or waxy clay and shale. In general, coarse-grained sand is in the lower part. The Paluxy grades upward into fine-grained sand with variable amounts of shale and clay. The sands are usually well sorted, poorly cemented, and crossbedded. Pyrite and iron nodules are often associated with the sands and frequently contribute a red stain to the individual beds. In some areas along the outcrop, high iron concentrations are present in ground-water analyses.

Thickness of the Paluxy varies considerably throughout the study region. From a maximum thickness nearing 400 feet (122 m) in the northern part of the study area, the Paluxy thins to the south and southeast to less than 100 feet (30 m) with a net sand thickness of less than 40 feet (12 m). This thickness change is shown on the geologic sections and on Figure 20, which shows the approximate net thickness of sand and the downdip limit of fresh to slightly saline water.

The Paluxy Formation is an important aquifer in the study region and during 1974, produced over 10,000 acre-feet (12.3 hm^3) of water for municipal and industrial use and provided water to many domestic and livestock wells. Water wells tapping the Paluxy aquifer yield small to moderate quantities of fresh to slightly saline water.

Woodbine Group

The Woodbine Group is the basal rock unit of the Gulf Series of Cretaceous age in the study area. It crops out in Cooke, Dallas, Denton, Grayson, Johnson, and Tarrant Counties with a northeast-southwest strike. In the northern part of Texas, the outcrop parallels the Red River in a west-east strike, cropping out in Fannin, Lamar, and Red River Counties (Figure 16). The regional dip is to the southeast at an average rate of 35 feet per mile (6.63 m/km) near the outcrop and up to 75 feet per mile (14.2 m/km) near the downdip limit of fresh to slightly saline water as illustrated on the geologic sections and on Figure 21, which shows the approximate altitude of the top of the Woodbine.

In the southern part of the study area, the Woodbine is composed of friable, ferruginous, fine-grained sand and sandstone with interbedded shale, sandy shale, and laminated clay. The upper part of the Woodbine displays a marked increase in shale and clay, while the lower portion exhibits a more sandy make-up. Ripple marks and large-scale crossbedding are prevalent throughout the entire Woodbine Group.

As previously stated, the water table is declining by as much as 7 feet (2 m) per year, reflecting the fact that more water is removed annually from the Antlers than is recharged. With the large saturated sand thicknesses available and proper use of well construction and spacing, no problems seem likely in the immediate future as far as Antlers ground-water availability is concerned.

According to Baker (1960, p. 65), the amount of fresh-water sand decreases northward in Grayson County, chiefly as a result of increasing amounts of salt water in the northern part of the county. The lower part of the Antlers contains saline water in the vicinity of the Preston anticline; therefore, the upper part of the Antlers or the Woodbine should be developed for ground water in this area.

Twin Mountains Formation

The Twin Mountains provides moderate to large quantities of fresh to slightly saline water to wells in nine of the twenty counties included in this study. The outcrop covers approximately 370 square miles (958 km^2) and lies within Hood, Parker, and Wise Counties. As illustrated on the geologic map (Figure 16), this basal Cretaceous aquifer forms the western boundary of this study. Data on the Twin Mountains were obtained primarily through the inventory of over 600 public supply, industrial, and irrigation wells located in the study area.

The primary source of ground water in the Twin Mountains is precipitation falling on the outcrop. Other minor sources include surface-water seepage from ponds, lakes, and streams cutting the outcrop. The average annual precipitation is about 30 inches (76 cm). However, probably less than 1 inch (2.5 cm) per year is available for recharge.

Ground water in the Twin Mountains usually occurs under water-table conditions in or near the outcrop, while ground water downdip from the outcrop is under artesian conditions. The lower sands and shales of the Twin Mountains are the hydrologic equivalent of the basal portion of the Antlers. Water-level maps for the Antlers and the Twin Mountains Formations have been combined and are shown on Figures 24, 25 and 28.

The average rate of movement of water in the Twin Mountains is estimated to be less than 2 feet (1 m) per year. Ground water moves slowly downdip in an easterly direction except for local changes. Water-level measurements indicate the present hydraulic gradient is extremely variable due to the large cone of depression surrounding the Dallas-Fort Worth metroplex, but in areas beyond this influence, a gradient of approximately 22 feet per mile (4.2 m/km) is average. Altitudes of water levels about 1955 and about 1976 are shown on Figures 24 and 25.

Water is discharged naturally from the Twin Mountains by springs and evapotranspiration and artificially by pumpage. In 1976, over 40,000 acre-feet (49.3 hm^3) of ground water was pumped from the Twin Mountains in the study area.

The coefficients of transmissibility, permeability, and storage for the Twin Mountains Formation are shown in Table 4. This table was compiled from existing literature and from data supplied by well drillers. Transmissibility and permeability values are also represented graphically on Figure 26. Permeability coefficients were computed by dividing the transmissibility of the well by its screened interval. Aquifer test results on 58 Twin Mountains wells were analyzed.

Review of the test results, illustrated on Figure 26, show that transmissibility values are generally higher in the central, northern, and eastern sections of the study area. The range of transmissibility was 1,950 to 29,700 (gal/d)/ft, or 24,200 to 369,000 (l/d)/m. The average for tests in Dallas County was 12,700 (gal/d)/ft, or 158,100 (l/d)/m; tests in Tarrant County was 8,450 (gal/d)/ft, or 105,000 (l/d)/m; and tests in the Johnson-Ellis County area was 6,480 (gal/d)/ft, or 80,500 (l/d)/m. Permeability values ranged from 8 to 165 (gal/d)/ft^2, or 326 to 6,720 (l/d)/m^2, with an average value of 68 (gal/d)/ft^2, or 2,770 (l/d)/m^2. Storage coefficients were obtained from 14 tests and ranged from 5×10^{-4} to 4×10^{-5} with an average value of 1×10^{-4}, or 0.0001. The specific yield in the outcrop is on the order of 15 percent as estimated by seismic methods (Duffin and Elder, 1979).

Yields of wells completed in the Twin Mountains range from 10 to 1,940 gallons per minute (gal/min) (0.63 to 122 l/s), with an average yield of 286 gal/min (18 l/s) for the 525 wells measured. Yields were considerably lower on or near the outcrop than yields of wells further downdip. Well yields generally increase from the southern part of the study area to the northern part. Both Collin and Dallas Counties have average well yields in excess of 700 gal/min, (44 l/s), while Hood, Parker, and Wise Counties average less than 100 gal/min (6.3 l/s). Denton, Ellis, and Tarrant Counties each average about 300 gal/min (19 l/s). Since many of the wells measured were of small capacity, improperly developed, or did not penetrate the full thickness of the aquifer, well yields are probably greater than the stated averages.

in Hood, Parker, and Wise Counties. Forty-seven irrigation wells that were inventoried accounted for 16 percent of the 1977 pumpage from the Twin Mountains.

The Twin Mountains Formation is the most prolific of the Cretaceous aquifers in the study area with about 55 percent of the total quantity of ground water utilized for municipal and industrial purposes. The quality of water is generally not as good as from the Paluxy or Antlers. However, higher well-yields allow some sacrifice in chemical quality. Approximately 700 analyses of water samples from the Twin Mountains have been tabulated and included in Table 10 which shows the range of constituents and properties of the water from representative wells. About 22 percent of these analyses contained dissolved-solids concentrations in excess of 1,000 mg/l.

Similar to the other Cretaceous aquifers in this study, the ground water from wells drilled on the outcrop of the Twin Mountains is hard and contains high concentrations of dissolved iron. In the downdip area, about 9 percent of the samples contain dissolved iron concentrations in excess of the recommended limit of 0.3 mg/l, and about 83 percent of the water is soft. The maximum allowable level for fluoride in the study area is 1.6 mg/l according to Drinking Water Standards adopted by the Texas Department of Health. Over 230 analyses contained fluoride levels exceeding 1.6 mg/l. Most of the other constituent levels were close to the maximum. Therefore, the main problems related to water quality for this aquifer are excessive fluoride and dissolved-solids concentrations. The downdip limit of fresh to slightly saline water is encountered about 60 to 75 miles (97 to 121 km) east-southeast of the outcrop in the majority of the study area (Figure 25). This distance is considerably less in the northern part of the study area where the outcrop trends eastward in the vicinity of Red River.

Since there are no concentrated areas of ground-water irrigation on the Twin Mountains outcrop, not enough chemical-quality data could be obtained to present a detailed classification of irrigation waters. Generally speaking, the Twin Mountains irrigation wells that are scattered through northeastern Hood County showed a very high sodium hazard, medium to high salinity hazard, and RSC levels classified as unsuitable for irrigation. Limited use of these wells accompanied with crop rotation and good management is necessary for continued good land productivity.

Irrigation wells, located near Brock in Parker County and completed on the Twin Mountains outcrop, were sampled and the results showed a low sodium hazard, medium salinity hazard, and zero RSC. The quality of water from 30 wells was suitable for irrigation use, but well yields limited extensive development.

Figure 29 shows the net sand thickness of fresh to slightly saline water-bearing sand in the Twin Mountains. Net sand thickness generally increases downdip in an easterly direction. Thickness increases from less than 100 feet (30 m) near the outcrop to over 400 feet (122 m) near the downdip limit of fresh to slightly saline water.

Areas for future development would have to be outside the Dallas-Fort Worth metroplex cone of depression. Even outside this influence, water levels are dropping over 10 feet (3 m) per year. There are several areas where water quality restricts development of wells for irrigation use as previously noted and depicted on Figure 23. Wells tapping the Twin Mountains aquifer in areas downdip from the outcrop and in areas where quality is not a problem can expect a steady decline in water levels and yields.

Paluxy Formation

The Paluxy yields small to moderate amounts of fresh to slightly saline water to public supply, industrial, domestic and livestock wells in 16 of the 20 counties included in this study. The majority of the Paluxy outcrop occurs in Hood, Parker, Tarrant, and Wise Counties as illustrated on the geologic map (Figure 16) and occupies about 650 square miles (1,684 km^2).

The primary source of recharge to the Paluxy is precipitation on the outcrop. Secondary sources include recharge from streams flowing across the outcrop and surface-water seepage from lakes. The Brazos and Trinity River systems and Eagle Mountain Reservoir are a few examples. The average annual precipitation on the outcrop is about 31 inches (79 cm). Only a small fraction of the amount is available as effective recharge since there is much runoff and evapotranspiration.

Water in the outcrop area is under water-table conditions and water levels remain fairly constant with only normal seasonal fluctuations. In downdip areas, water is under artesian conditions, and is confined under hydrostatic pressure from overlying formations. The average rate of movement of water in the Paluxy amounts to less than 2 feet (0.6 m) per year in an easterly direction except in downdip areas of heavy pumpage where cones of depression have occurred and movement is towards the center of the pumped wells. Water-level measurements indicate that the present hydraulic gradient is approximately 27 feet per mile shows the range of constituents and properties of water from representative wells in the Paluxy Formation.

Figure 20 shows the net sand thickness of fresh to slightly saline water-bearing sand in the Paluxy. Net sand thicknesses increase from less than 50 feet (15 m) in Johnson County to 190 feet (58 m) in Denton County. Ordinarily, the most favorable areas for development of ground water would be where the saturated sand is greatest. However, due to the heavy pumpage over the past 30 years, most areas are already overdeveloped and water levels are declining at an alarming rate. The only area that seems available for increased development would be in areas of Fannin and Lamar Counties. The six public supply wells in these counties are located in an area where water from the Woodbine is saline. Well yields in excess of 100 gal/min (6.3 l/s) with pumping levels below 300 feet (91 m) are encountered.

Any Paluxy wells developed in the area of the cone of depression in eastern Tarrant County can expect pumping levels, and in some areas static water levels, to be below the top of the aquifer. Pumps are usually set near the base of the formation. Outside this area and downdip from the outcrop, water levels are declining from 4 to 12 feet (1 to 4 m) per year. Correct spacing of wells is a prerequisite throughout the study region. Any additional development of the Paluxy will result in further lowering of the artesian head in areas where the water levels are still above the formation top. In sone areas, additional development will result in dewatering of the aquifer.

Woodbine Group

The Woodbine Group is an important aquifer in the study region. The outcrop extends in a south-north direction through the center of the report area and then trends to the east parallel to the Red River. The Woodbine dips eastward where it reaches a maximum thickness of about 700 feet (213 m) and has a maximum depth of 2,500 feet (762 m) below land surface. The areal extent of the outcrop and the approximate altitude to the top of the Woodbine are illustrated on Figure 21.

The primary source of ground water in the Woodbine is rainfall on the outcrop area. This area receives an annual rainfall of from 33 inches (84 cm) in the south to 37 inches (94 cm) in the north. Other sources of ground water include surface-water seepage from lakes and streams, such as Lake Grapevine, Garza-Little Elm Reservoir, and the Trinity River tributaries.

Water occurs in saturated sand beds under both water-table and artesian conditions. Water-table conditions occur in or near the outcrop while artesian conditions prevail downdip.

Recharge to the Woodbine occurs in the outcrop area, about 1,200 square miles (3,108 km^2), which consists of a permeable, sandy soil conductive to infiltration of rainfall and seepage from streams. The quantity of recharge to the Woodbine is estimated to be equivalent to less than one inch of precipitation per year on the sandy portion of the outcrop. The movement of water follows an east-southeast direction from the outcrop, generally paralleling the dip of the beds. According to Baker (1960), the average rate of water movement in the Woodbine is estimated to be about 15 feet per year (4.6 m/yr). The hydraulic gradient varies from over 30 feet per mile (5.7 m/km) to less than 13 feet per mile (2.5 m/km) within the study area except for minor local variations and for cones of depression around areas of excessive ground-water pumpage. The hydraulic gradient and a large cone of depression around the city of Sherman are illustrated on Figure 33, which also shows the approximate altitude of water levels in the Woodbine aquifer about 1976.

Discharge from the Woodbine occurs naturally through springs and seeps, evaporation, and transpiration by plants. Evapotranspiration is greatest in the summer and where vegetation is dense. Pumpage of wells constitutes most of the water artificially discharged from the aquifer and includes some flowing wells along the Red River portion of the outcrop. In 1976, about 20,500 acre-feet (25.3 hm^3) of ground water was pumped from the Woodbine in the region.

The coefficients of storage, permeability, and transmissibility and the specific capacity for the Woodbine are shown on Table 4. Aquifer test locations and results are shown on Figure 26. The table was compiled from existing literature and from tests conducted by water-well drillers. Data from aquifer tests were analyzed by using the modified Theis nonequilibrium formula in conjunction with a computer program which provides a means of computing transmissibility from the water-level recovery of a step-drawdown test. The permeability coefficients were computed by dividing the transmissibility by the effective sand thickness. Specific capacities of wells were determined by dividing the yield by the total water-level drawdown measured in the well.

The specific yield was estimated using seismic methods (Duffin and Elder, 1979) in the outcrop under

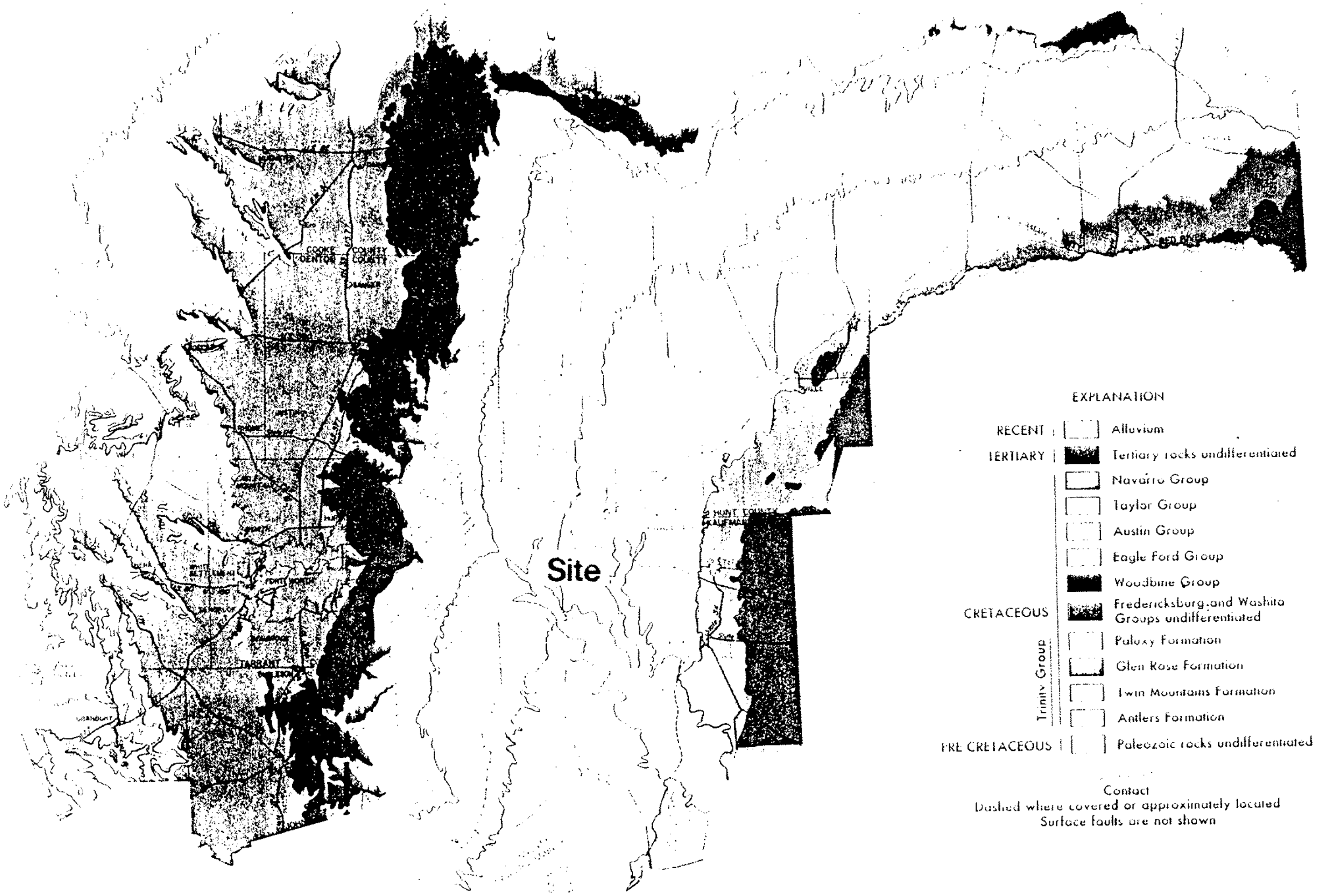


Figure 16
Geologic Outcrop Map

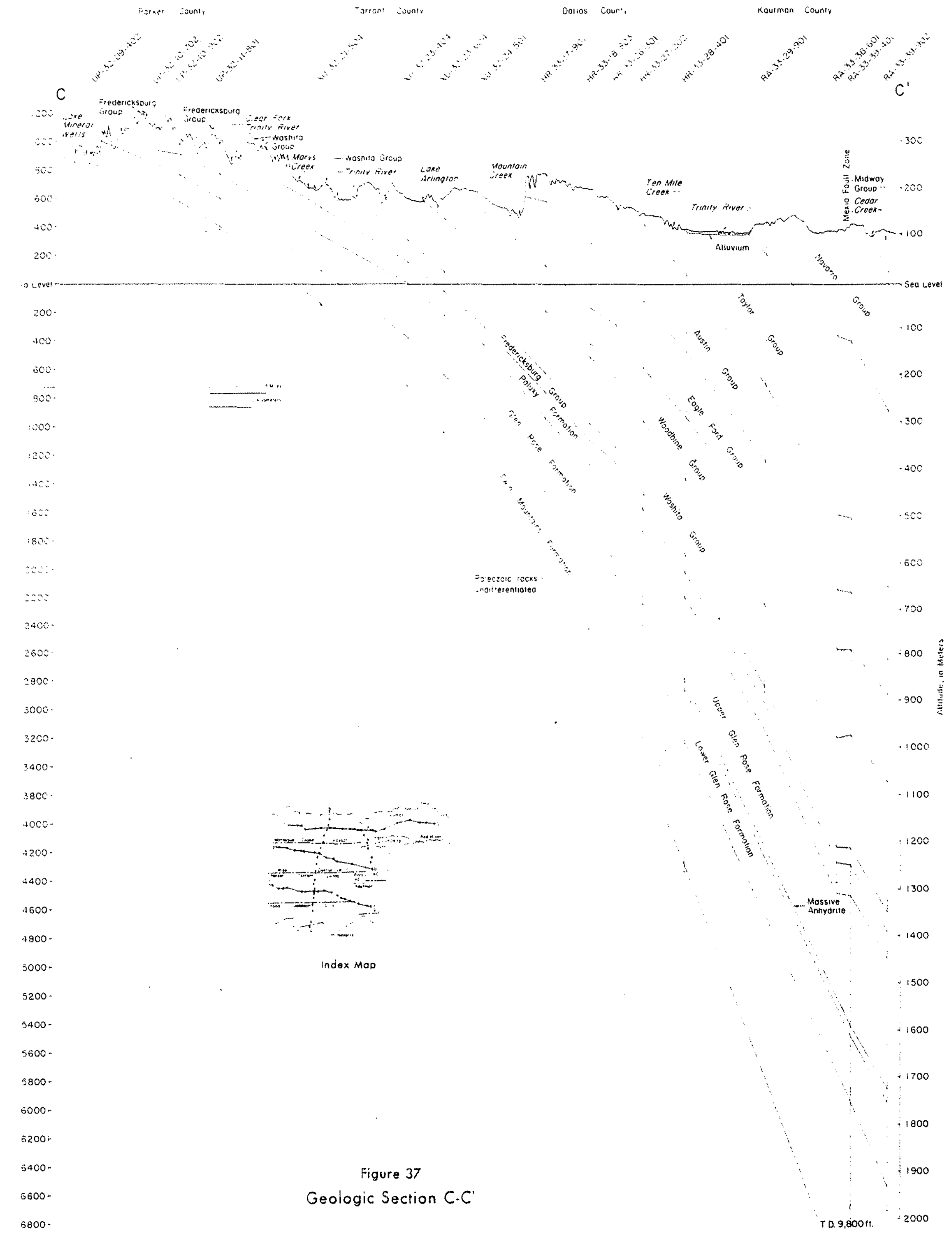


Figure 37
Geologic Section C-C'

REFERENCE 14

THE UNIVERSITY OF TEXAS AT AUSTIN
BUREAU OF ECONOMIC GEOLOGY

TO ACCOMPANY MAP—DALLAS SHEET—
GEOLOGIC ATLAS OF TEXAS

GEOLOGIC ATLAS OF TEXAS
DALLAS SHEET

GAYLE SCOTT MEMORIAL EDITION

VIRGIL E. BARNES, Project Director

1972
Revised 1988

EXPLANATION

QUATERNARY

Holocene

Qal	Qu

Alluvium and Quaternary deposits undivided

Alluvium, Qal, flood-plain deposits including indistinct low terrace deposits; gravel, sand, silt, silty clay, and organic matter. Quaternary deposits undivided, Qu, mostly colluvium with some alluvium and alluvial fan deposits

Pleistocene

Qt

Fluviatile terrace deposits

Gravel, sand, silt, and clay; contiguous terraces of different ages separated by solid line

TERTIARY

Eocene and Paleocene

EPAwi

Wilcox Group undivided

Mostly mudstone with various amounts of sandstone, lignite, ironstone concretions, locally glauconitic in uppermost and lowermost parts. Mudstone, massive to thin bedded, interbedded with laminae of silt and very fine sand, pale brown to yellowish brown in upper part, medium to dark gray in lower part, weathers yellowish brown. Sandstone, medium to fine grained, moderately well sorted, cross-bedded, lenticular in upper part, units a few inches to 30 feet thick in lower part, light gray to pale yellowish brown and yellowish brown to moderate brown. Lignite mostly near middle of formation, seams 1-20 feet thick, brownish black. Abundant plant fossils, a few marine megafossils. Thickness 1,000-1,500 feet

Paleocene

PAkt	PAwp
	PAkp

Midway Group

Includes Wills Point Formation, PAwp, Tehuacana Member of Kincaid Formation, PAkt, and Pisgah and Littig Members of Kincaid Formation undivided, PAkp

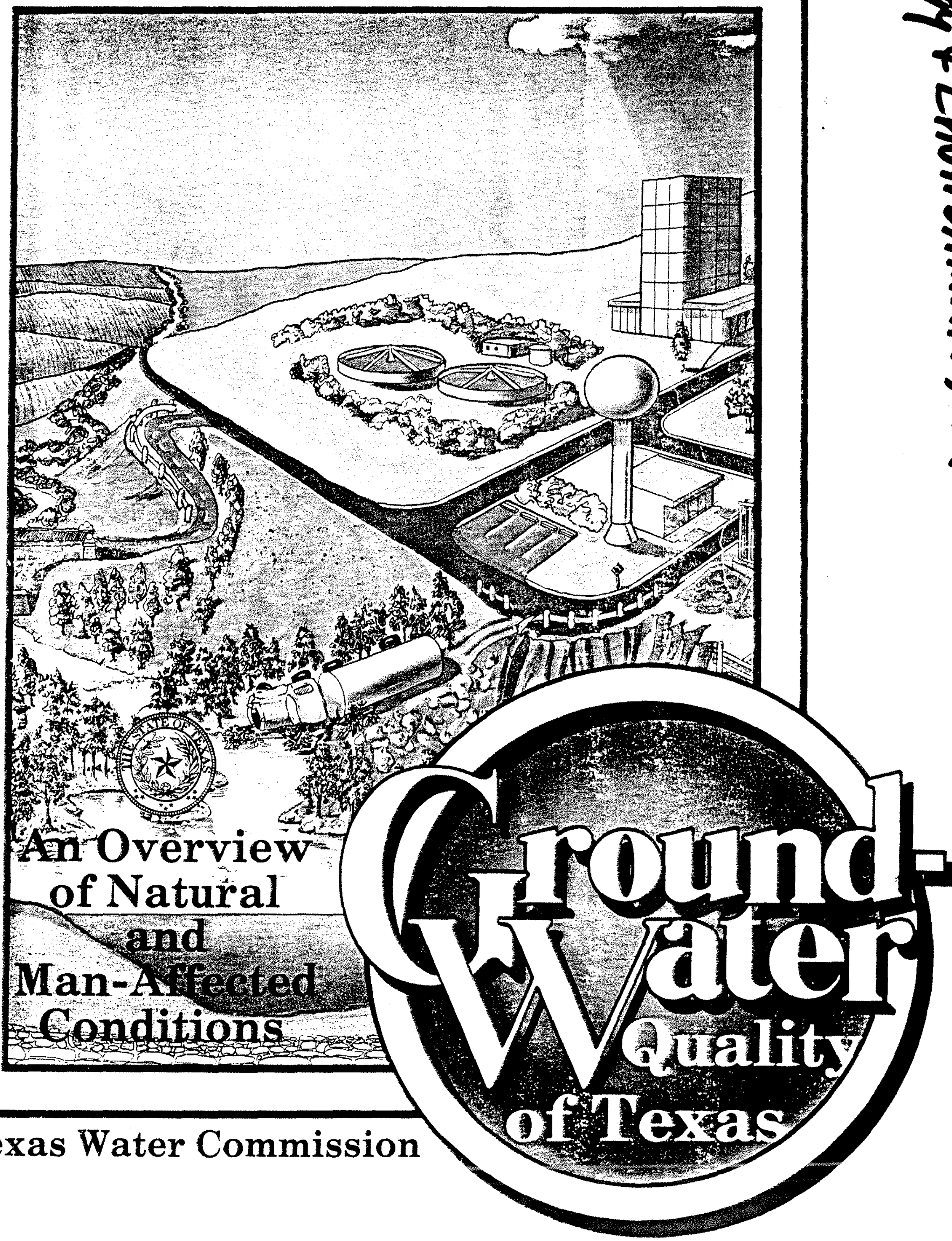
Wills Point Formation, PAwp, *clay, silty, sandy, silt and sand more abundant upward, slightly glauconitic near base, 10-inch rosette limestone bed below middle, massive, poorly bedded, grades upward to mudstone and sand of Wilcox Group, light gray to dark gray; weathers medium gray to yellowish gray, topographically featureless; thickness 550± feet*

Tehuacana Member of Kincaid Formation, PAkt, *limestone, silty, slightly glauconitic, hard, white to light gray, interbedded with light gray marl, thickness up to 30 feet, outcrop discontinuous, absent south of Trinity River*

Pisgah and Littig Members of Kincaid Formation undivided, PAkp, *sand and clay. Sand, glauconitic, argillaceous, poorly sorted, medium gray to greenish gray, some hard sandstone beds near top; clay, sandy, silty, phosphatic pebbles and nodules present in lower part, medium gray to dark gray; weathers to yellow and yellowish brown soil. Thickness 150± feet*

REFERENCE 15

Report 89-01 March 1989



Ground-Water Quality of Texas

An Overview of Natural and Man-Affected Conditions

Texas Water Commission

Balcones Fault Zone. Small amounts o ɔund water enter the aquifer from the underlying Glen Rose Formation as either lateral underflow or upward leakage along faults. Water moves regionally from recharge areas, through highly permeable solution zones, to discharge at wells and naturally at numerous small and large springs including Leona Springs near Uvalde, San Antonio and San Pedro Springs in San Antonio, Comal Springs in New Braunfels, San Marcos Springs in San Marcos, Barton Springs in Austin, and Salado Springs in Salado (Muller and Price, 1979).

Discussions by Maclay and Small (1983) and Maclay and others (1985) on lithology and fault barriers within the Edwards (Balcones Fault Zone) aquifer indicate that the direction of ground-water flow is controlled by the presence and continuity of permeable strata within the aquifer and by faults which abruptly disrupt the lateral continuity of these permeable zones. High angle normal faults within the aquifer can place rocks of very high permeability adjacent to rocks of very low permeability. They concluded that as ground water moves downgradient, the displacement of high permeable layers can cause a partial to complete barrier to flow within the aquifer, and can result in a redirection of flow parallel to the fault. The "bad water line," defined for this report as the down gradient boundary of less than 1000 mg/L TDS water (Figure 10), in the southern portion of the aquifer is partially caused by ground water not crossing faults with a vertical displacement of greater than 50 percent of the thickness of the aquifer (Maclay and Small, 1983). Also, the aquifer permeability is less downdip from the "bad water line," with the rock matrix in the saline water zone having undergone relatively little change since burial by late Cretaceous deposits. The permeability of this part of the aquifer is less, due to the small size of the interconnecting channels between the pores within the rock matrix (Maclay and Small, 1983).

In the southern part of the aquifer, in Medina County, the width of the aquifer which contains fresh water (TDS of 1000 mg/L or less) is greatest, and thins to the east and northeast towards Austin in Travis County (Figure 10). The fresh water zone widens in the Round Rock and Georgetown area and then thins in Bell County. The narrow zone of low TDS water in the Austin area is associated with intensive faulting which retards ground-water recharge and flow in an easterly (downgradient) direction (Baker and others, 1986). North of Pflugerville, where faulting is less intense, a tongue of recharging water containing less than 500 mg/L TDS has penetrated downgradient between fault blocks. In Williamson and Bell Counties where faulting and the resultant displacement of the aqui is less severe, ground water with a TDS concentration of less than 1000 mg/L extends a greater distance downdip (Baker and others, 1986).

The same quality trends are evident for chloride and sulfate, with concentrations that exceed drinking water standards generally occurring downgradient of the "bad water line" (Figure 10). Clement and Sharp (1987) attribute the increase of chloride and sulfate to either the long residence time of the water in the aquifer, which allows the water to react with the natural evaporite deposits within the rock matrix, or upward movement along faults of more saline waters into the aquifer. The latter may be responsible for isolated spots of highly mineralized ground water which occur upgradient of the "bad water line."

High nitrate concentrations in the ground water are considered to be a man-induced problem (Kreitler and others, 1987). A review of published data did not indicate a problem with high nitrate concentrations in wells completed in the southern section of the aquifer (Browning, 1977), possibly due to dilution by the high recharge volumes entering the aquifer. However, high values have been recorded in one well northeast of the city of Uvalde. In the northern section of the aquifer in the Pflugerville and Georgetown area, wells with high nitrate concentrations occur (Figure 10). Concentrations that exceed the drinking water standard are associated with low TDS (less than 500 mg/L) recharging waters, and may be the result of direct recharge to the aquifer from leaking septic systems (Kreitler and others, 1987).

Trinity Group

Providing public, domestic, and industrial supplies in densely populated areas in North, Central, and South-Central Texas and irrigation supply throughout much of northern and central Texas (Muller and Price, 1979), the Trinity Group aquifer serves all or part of 56 Texas counties (Figure 1). The aquifer is composed of the Paluxy, Glen Rose, and Travis Peak (Twin Mountains) Formations. The Glen Rose Formation normally separates the Paluxy and Travis Peak, however, west of a line which runs through Eastland, Comanche, and Brown Counties and north of Decatur in Wise County, the Glen Rose Formation thins or is missing, and the Paluxy and Travis Peak Formations merge and are termed the Antlers Formation (Muller and Price, 1979). These lower Cretaceous-age strata were deposited in fluvial, deltaic, strandplain, and shallow marine environments (Mosteller, 1970; Hobday and others, 1981) and are composed primarily of sand with interbedded clays, limestone, dolomite, grav and conglomerates with evaporite deposits present in the upper Glen Rose Formation. Saturated thickness ranges from approximately 100 feet in the outcrop area to about 1200 feet near the downdip limit of fresh to slightly saline water (Muller and Price, 1979).

General quality of the ground water in the Trinity aquifer is illustrated in Figure 11. Recharge, infiltration, lithology, environment of deposition, and structure exert natural controls on the water quality. Recharge through the unconfined portion of the aquifer is primarily in the form of infiltration of precipitation and seepage of surface water from lakes, unlined earthen ponds, streams, and return flows of water used to irrigate crops; and substantial recharge to the confined portion of the aquifer is derived by leakage from the overlying water-bearing strata (Ashworth, 1983; Rapp, 1988). During dry periods, recharge is relatively small, and large water level declines can occur. Water entering the Trinity Group aquifer generally moves basinward to the south and southeast as reflected in the increasing TDS, sulfate, and chloride concentrations along the flow path. Discharge occurs in areas of continuous pumpage and naturally through spring flow to drainage areas. Topography controls the local flow direction more directly than structural dip in the unconfined portion of the aquifer (Ashworth, 1983) with higher TDS concentrations occurring in major drainage basins.

Structural features, including the Balcones and Luling-Mexia-Talco Fault Zones and the ridges and valleys of the eroded pre-Cretaceous depositional surface such as the McGregor High, affect the direction and rate of regional ground-water flow (Klemt and others, 1975). The Balcones Fault Zone extends from Kinney to Bell Counties (Figure 11). The Luling-Mexia-Talco Fault Zone parallels the Balcones in the northeastern part of the aquifer. These fault zones may completely block or severely restrict the movement of water into the basin, and may allow undesirable saline water to enter the aquifer along the fault planes. The western boundary of the Luling-Mexia-Talco Fault Zone may control the downdip limit of fresh to slightly saline water (Klemt and others, 1975). Control on accumulated thickness of the aquifer was exerted by the paleotopography which existed prior to the deposition of the Cretaceous sands, resulting in thicker accumulations of sand occurring in the paleovalleys and thinner (less permeable) accumulations occurring on the ridges (Klemt and others, 1975).

The environment under which the aquifer sediments were deposited influences the chemical character of the water due to permeability variations; orientation of thicker, more permeable units; and chemical coı sition of the lithologic units. There is a rapid increase in TDS, chloride, and sulfate concentration at the boundary between the dip-elongate more permeable fluvial-deltaic systems and the less permeable strike-elongate prodelta, lagoon, and shelf system in Falls, McLennan, and Hill Counties (Woodruff and McBride, 1979). Strike-elongate sand thicks correlate with deep penetration of less than 1000 mg/L TDS waters in the central part of the aquifer. Recharge by infiltration through the overlying Glen Rose Formation may result in an increase in sodium sulfate and chloride by dissolution of the evaporite deposits (Rapp, 1988). High TDS and associated high sulfate and chloride concentrations also correspond to a mapped lithologic change of less permeable calcareous cemented facies south of Killeen (Klemt and others, 1975). Higher constituent concentrations in northern Lamar, Fannin, and Red River Counties may be due to a lithologic pinch out of aquifer material indicated on cross sections by Baker and others (1963).

Excessive ground-water pumpage from the lower part of the Trinity aquifer may allow significant amounts of more sulfate-rich water, from the Glen Rose or deeper more basinal waters, to be drawn into the production zone, resulting in lower water levels with an associated increase in pumping costs and production of poorer quality water (Rapp, 1988). The elongate fingering of higher TDS waters in the Dallas-Fort Worth area may indicate areas where over pumpage of the aquifer is occurring. Movement of poorer quality waters into the more permeable dip-elongate units, either from the basin or out of the adjacent less permeable units, may be the result of over stressing the aquifer. Areas of over production that may have resulted in a change in water quality occur throughout the northern part of the aquifer, for example, near Sherman in Grayson County and McKinney in Collin County. Additionally in the northwest outcrop of the aquifer, oil and gas production with its associated disposal of salt water has been indicated as a possible source of high constituent concentrations in the ground water in Parker, Wise, Eastland, and Comanche Counties (Klemt and others, 1975; Nordstrom, 1982).

Alluvium and Bolson Deposits

Water-bearing alluvium and bolson deposits of Tertiary to Recent age occur throughout the state (Figure 1). Although these sediments are completely separate geographically, they are collectively considered a single major aquifer due to their geologic and hydrologic similarities (Muller and Price, 1979). Alluvium deposits are composed of stream-borne, wind-

Ground water from the Edwards-Trinity (Plateau) aquifer has a wide range of TDS concentrations, with a general increase from southeast to northwest (Figure 16). Ground-water salinity increases toward regional discharge areas such as major rivers and streams which dissect the aquifer, for example, the Pecos River which marks the boundary between Pecos and Crockett Counties; the Llano River in central and northeastern Kimble County; the San Saba River in central Menard County; the South and Middle Concho Rivers and Spring Creek southwest of San Angelo in Tom Green County; and the North Concho River in southeastern Sterling County. In the northwest where the aquifer is overlain by younger sediments which contain saline water, the higher TDS, chloride, and sulfate concentrations may be due to leakage into the aquifer from these sediments (Scalf and others, 1973). In the trans-Pecos part of the aquifer, Rees and Buckner (1980) attribute the high concentrations of TDS, chloride, and sulfate to deep discharge to the Edwards-Trinity (Plateau) aquifer from the underlying evaporite deposits of the Castile and Rustler Formations in Culberson and northwest Reeves Counties and from the Rustler Formation in north central Pecos County. In some heavily irrigated areas, infiltration from water applied on fields may be entering the ground water to be cycled again onto the fields, causing a salinity increase due to the continual contribution of leached surface salts from the soil zone (Rees and Buckner, 1980). Elevated levels of nitrate in the ground water around one irrigation area in Pecos County were indicated by Rees and Buckner (1980).

Some areas of high chloride concentration are coincident with areas of heavy oil and gas production such as Sterling, Glasscock, Reagan, Upton, Crockett, and north-central Pecos Counties, and may be the result of oil field brine disposal activities (Rees and Buckner, 1980; and Walker, 1979). Contamination of the aquifer may be occurring from historic salt water disposal pits, brine disposal wells or playa lakes, or historic dumping of salt water into surface drainageways and on county roads (Walker, 1979).

Minor Aquifers

Minor aquifers provide water throughout the state (Figure 2) and contain the same dissolved minerals as the major aquifers, including calcium, magnesium, bicarbonate, sodium, chloride, sulfate, nitrate, iron, and radium, and dissolved gases like hydrogen sulfide, and methane (Texas Department of Water Resources, 1984). The Edwards-Trinity (High Plains), Ellenburger-San Saba, Marble Falls, Marathon, Bone Spring and Victorio Peak, Capitan, and Rustler aquifers are all composed of limestone and/or dolomite and contain water which is hard, and contain higher concentrations of calcium, magnesium, and bicarbonate (Texas Department of Water Resources, 1984). The Edwards-Trinity (High Plains), Bone Spring and Victorio Peak, Capitan, and Rustler aquifers have high concentrations of chloride and sulfate in some areas.

Sandstone aquifers, consisting of the Woodbine, Queen City, Sparta, Santa Rosa, Hickory, Nacatoch, and Blossom, contain higher concentrations of sodium, chloride, and sulfate ions (Texas Department of Water Resources, 1984). The Woodbine, Queen City, Sparta, and Hickory aquifers have areas of high iron concentrations. Hydrogen sulfide gas is abundant within the Queen City aquifer (Texas Department of Water Resources, 1984). Water from the Blaine, an aquifer composed of evaporitic deposits, is high in dissolved solids, chiefly calcium and sulfate.

Woodbine

From northern McLennan County northward to the Red River (Figures 2 and 17), the sand and sandstone beds of Cretaceous age which comprise the Woodbine aquifer furnish water for municipal, industrial, and small irrigation supplies (Muller and Price, 1979). The aquifer crops out in a narrow belt which trends south from southeastern Cooke County and is exposed in patches in a west-east direction paralleling the Red River in Grayson, Fannin, Lamar, and Red River Counties (Muller and Price, 1979). As described in a study by Nordstrom (1982), rainfall on the outcrop is the primary source of aquifer recharge, however, surface-water seepage from lakes and streams is considered to be an additional recharge source. Ground water flows to the east, following the dip of the aquifer into the subsurface. Discharge occurs naturally through springs and seeps, evaporation, and transpiration by plants. Most artificial discharge occurs through the pumping of wells, with a minor amount of discharge occurring from flowing wells along the Red River portion of the outcrop (Nordstrom, 1982).

The aquifer reaches a maximum thickness of about 600 feet and contains fresh to slightly saline water to a maximum depth of 2000 feet below land surface (Muller and Price, 1979). In the southern segment of the aquifer, the Woodbine is composed of friable, iron bearing fine-grained sand and sandstone with interbedded shale, sandy shale, and clay (Nordstrom, 1982). The northern segment is generally divided into lower, middle, and upper parts, with the upper being composed of fine-grained, well sorted, reddish-brown sandstone with concretions and shale present; the middle part being composed of reddish sandstone with interbedded gray to brown clay and shale; and the lower part being composed of interbedded, red-brown to white sandstone with ironstone and sandy, gray to brown clay (Nordstrom, 1982). In the northern segment, only the lower part of the aquifer is considered by Nordstrom (1982) to be suitable for water supply development.

Fresh, good quality water is produced from wells completed on or near the outcrop of the Woodbine aquifer (Nordstrom, 1982; Figure 17). High iron concentrations, which occur in the upper Woodbine sands (Nordstrom, 1982), make the water undesirable, as discussed earlier in the section on iron. Water quality deteriorates rapidly downdip from the outcrop, with total dissolved solids, sodium, chloride, and bicarbonate concentrations increasing (Nordstrom, 1982). High fluoride concentrations have been reported in some areas (Texas Water Development Board, 1988). A finger of higher TDS waters in Collin County, west of McKinney, corresponds to an area that is experiencing extensive ground-water pumpage with a resultant lowering of the ground-water potentiometric surface (Texas Water Development Board, 1988). High nitrate levels are not found naturally in aquifer waters, however, a few shallow dug wells produce water with nitrate levels above 45 mg/L (Nordstrom, 1982).

Queen City

Extending from the Frio River in Frio County northeastward to the Louisiana border (Figure 18), the Queen City aquifer of Eocene age consists principally of sand, loosely cemented sandstone, and interbedded clays (Muller and Price, 1979). North of Houston County, the aquifer is generally exposed at the surface with intense faulting in Cherokee and Anderson Counties. The arched outcrop in this segment of the aquifer curves around the Sabine Uplift (described in the "Carrizo-Wilcox" section) and, beginning in Cherokee and Anderson Counties, the sediments dip to the south (Payne, 1972). South of this area, the width of the outcrop narrows and is highly faulted from Milam to Gonzales Counties and then becomes wider again in Frio County. In the southern section, aquifer sediments dip to the south and southeast, towards the Gulf (Payne, 1972).

Variations in aquifer thickness and hydraulic conductivity are a reflection of the environments under which the sediments were deposited. Payne (1972) studied the Queen City aquifer and found that it is about 800 feet thick near the outcrop in Frio and Atascosa Counties and then thins eastward to 600 feet or less in the outcrop in Wilson and Gonzales Counties. The aquifer continues to thin in a northeastward direction to a minimum thickness of 50-100 feet and eventually the water-bearing sands pinch out in the vicinity of Lufkin, Angelina County. The thickest and highest percentage of sand units occurs in the southwestern part of the aquifer in a band from Wilson to Frio Counties. He determined that these sands were deposited in channels and as nearshore and alongshore bars associated with a delta complex centered in La Salle, McMullen, and Webb Counties. Eastward, the sands were deposited by minor fluvial systems. He concluded that the general elongation subparallel to the outcrop of the sands in Burleson and Walker Counties suggests that they were deposited in nearshore and alongshore bars and beach environments.

Recharge to the Queen City occurs by infiltration of rainfall on the outcrop, infiltration of water from streams, and by upward movement of water from the underlying Carrizo-Wilcox aquifer (Payne, 1972). In the southwestern part of the aquifer, discharge from the Carrizo Sand is considered to be a major source of recharge to the Queen City aquifer (Payne, 1972). Regional flow is down the dip of the aquifer to the south and southeast. Water discharges naturally through seeps and springs in the outcrop and through leakage to the overlying strata. Man-induced discharge from wells is used to supply water for rural, domestic, and livestock purposes on or near the outcrop, for municipal pumpage in central and northeast Texas, and for irrigation purposes in the southern part of the aquifer, especially in Wilson County (Texas Water Development Board, 1988).

Concentrations of total dissolved solids are generally low (less than 1000 mg/L) in outcrop areas (Figure 18), and probably reflect sediment flushing by recharging waters. Recharge through the large outcrop area north of Houston County is reflected by the large extent of less than 500 mg/L TDS waters. Intense faulting in the south-central part of the aquifer outcrop and orientation of the sand bodies perpendicular to flow direction may prevent deep penetration of recharge waters, resulting in a rapid deterioration of ground-water quality towards the basin. Throughout much of the aquifer in northeast Texas, the ground water has high acidity (low pH) and locally contains excessive concentrations of iron (Muller and Price, 1979). Hydrogen sulfide gas, present in some areas, gives the water a "rotten egg" odor.

REFERENCE 16

MITRE

26 May 1988
W52-[illegible]

Ms. Lucy Sibold
U.S. Environmental Protection Agency
401 M Street, S.W.
Room 2636, Mail Code WH-548A
Washington, D.C. 20460

Dear Ms. Sibold:

Enclosed is a copy of the draft revised HRS net precipitation values for 3,345 weather stations where data were available. The data are presented by state code, station name, latitude longitude, and net precipitation in inches. A list of state codes is also enclosed.

The net precipitation values are provided to assist the Phase II Field Testing efforts. It is suggested that the value from the nearest weather station in a similar geographic setting be used as the net precipitation value for a site.

If there are any questions regarding this material, please contact Dave Egan at (703) 883-7866.

Sincerely,

Andrew M. Platt
Group Leader
Hazardous Waste Systems

AMP:DEE/hme

Enclosures

cc: Scott Parrish

The MITRE Corporation
Civil Systems Division
7525 Colshire Drive, McLean, Virginia 22102-3481
Telephone (703) 883-6000 Telex [illegible]

OBS	STATE	NAME		LATNUM	LONNUM	NETPREC
2696	41	LIVINGSTON 2 NNE		30.44	94.56	17.4546
2697	41	LLANO		30.45	98.41	3.2401
2698	41	CAMERON		30.51	96.59	8.7802
2699	41	FT STOCKTON KFST RADIO		30.52	102.54	0.0006
2700	41	MADISONVILLE		30.57	95.55	12.8990
2701	41	LAMPASAS		31.03	98.11	5.9964
2702	41	TEMPLE		31.06	97.21	8.2039
2703	41	MC CAMEY		31.08	102.12	0.0235
2704	41	BRADY 2 NNW		31.09	99.21	2.3916
2705	41	EDEN 1		31.13	99.51	1.6053
2706	41	LUFKIN FAA AP		31.14	94.45	14.1089
2707	41	CENTERVILLE		31.16	95.59	13.4505
2708	41	CROCKETT		31.18	95.27	14.7831
2709	41	MARLIN 3 NE		31.20	96.51	10.5747
2710	41	SAN ANGELO WSO	R	31.22	100.30	0.6783
2711	41	PECOS		31.25	103.30	0.0278
2712	41	GATESVILLE		31.26	97.46	6.9334
2713	41	WACO WSO	R	31.37	97.13	6.7548
2714	41	MEXIA		31.41	96.29	12.6400
2715	41	YSLETA		31.42	106.19	0.0144
2716	41	BROWNWOOD		31.43	98.59	3.6480
2717	41	BALLINGER 1 SW		31.44	99.58	1.8361
2718	41	PALESTINE		31.47	95.39	14.9654
2719	41	WINK FAA AIRPORT		31.47	103.12	0.0679
2720	41	CENTER		31.48	94.10	19.7093
2721	41	RUSK		31.48	95.09	17.1421
2722	41	EL PASO WSO	R	31.48	106.24	0.0366
2723	41	COLEMAN		31.50	99.26	2.6019
2724	41	WHITNEY DAM		31.51	97.22	8.7833
2725	41	MIDLAND WSO	//R	31.57	102.11	0.1090
2726	41	LA TUNA 1 S		31.58	106.36	0.0908
2727	41	HICO		31.59	98.02	6.6495
2728	41	HILLSBORO		32.01	97.07	9.8798
2729	41	MIDLAND 4 ENE		32.01	102.01	0.1717
2730	41	CORSICANA		32.05	96.28	12.6209
2731	41	DUBLIN		32.06	98.20	6.8356
2732	41	RISING STAR		32.06	98.58	4.4163
2733	41	HENDERSON		32.11	94.48	17.2371
2734	41	BIG SPRING		32.15	101.27	0.5629
2735	41	CLEBURNE		32.20	97.24	7.9469
2736	41	WAXAHACHIE		32.24	96.51	11.0671
2737	41	ABILENE WSO	//R	32.25	99.41	1.9190
2738	41	ROSCOE		32.27	100.32	1.6700
2739	41	MARSHALL		32.32	94.21	19.1921
2740	41	KAUFMAN 3 SE		32.33	96.16	13.7363
2741	41	WILLS POINT		32.42	96.01	17.5271
2742	41	LAMESA 1 SSE		32.42	101.56	0.3682
2743	41	SNYDER		32.43	100.55	0.8168
2744	41	SEMINOLE		32.43	102.40	0.3347
2745	41	GILMER 2 W		32.44	94.59	18.6724
2746	41	ALBANY		32.44	99.18	3.2886
2747	41	WEATHERFORD		32.46	97.49	7.8519
2748	41	MINERAL WELLS FAA AP		32.47	98.04	5.6707
* 2749	41	DALLAS FAA	//R	32.51	96.51	9.7708
2750	41	DALLAS-FORT WORTH REG WSO		32.54	97.02	6.7013

REFERENCE 17

Report 269

OCCURRENCE, AVAILABILITY, AND CHEMICAL QUALITY OF GROUND WATER IN THE CRETACEOUS AQUIFERS OF NORTH-CENTRAL TEXAS

Volume 2

TEXAS DEPARTMENT OF WATER RESOURCES

July 1982

DELTA COUNTY

Table 1.--Records of Selected Water Wells

All wells are drilled unless otherwise noted in the remarks column.
Water level : Reported water levels given in feet; measured water levels given to the nearest tenth of a foot.
Method of lift and type of power: A, airlift; C, cylinder; E, electric; G, gasoline, butane or diesel engine; H, Hand; J, Jet; N, none; S, submersible; T, turbine; W, windmill. Number indicates horsepower.
Use of water : D, domestic; Ind, industrial; Irr, irrigation; N, none; P, public supply; S, livestock.
Water-bearing unit : Kcpa, Paluxy Formation; Kgna, Nacatoch Sand.

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Water bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*HU-17-34-301	Ben Franklin Water Supply Corporation	J. L. Myers Sons	1964	3,333	7	3,333	Kcpa	540	127.0	May 19, 1971 Nov. 8, 1974	S, E 10	P	Cemented. Gun perforated from 3,118-3,151 ft. Pump set at 250 ft. Pumping level 161.10 ft on Nov. 19, 1975. 2 3
* 601	West Delta Water Supply	do	1974	3,428	12 7 3	40 3,420 3,411	Kcpa	535	230 190.0	June 18, 1974 Jan. 7, 1975	S, E 20	P	Cemented to bottom. Gun perforated from 3,333-3,342; 3,345-3.372; and 3,380-3,414 ft. Screened from 3,349-3,411 ft. Gravel packed. Pump set at 504 ft. Pumping level 480 ft at 105 gal/min on June 18, 1974 and 320 ft at 127 gal/min on Jan. 7, 1975. 1 2
35-601	Enloe and Lake Creek Water Supply Corp.	West Texas Tool and Service Co.	1965	3,456	7	3,456	Kcpa	472	150	Jan. 25, 1965	N	N	Perforated from 3,210-3,270 ft. Salt water and oil contaminated. Plugged.
* 42-706	City of Commerce	Layne-Texas Co.	1970	580	14 9	394 580	Kgna	510	332	Sept. 8, 1970	T, E 35	P	Screened from 400-440 and 450-490 ft. Measured yield 125 gal/min. Temp. 77°F. 1 2
* 806	do	do	1965	540	14 9	417 540	Kgna	485	159	Oct. 14, 1965	T, E 40	P	Screened from 422-462 and 485-525 ft. Pump set at 470 ft. Measured yield 150 gal/min. Pumping level 351 ft at 200 gal/min when drilled. 1 2
* 807	do	do	1965	635	14 9	497 635	Kgna	480	148	Nov. 15, 1965	T, E 50	P	Screened from 507-555 and 575-620 ft. Pump set at 560 ft. Measured yield 200 gal/min. Pumping level 359 ft at 258 gal/min when drilled. 1 2
808	do	do	1965	540	14 9	417 540	Kgna	475	148	Dec. 8, 1965	T, E 50	P	Screened from 425-465 and 482-525 ft. Pump set at 470 ft. Measured yield 145 gal/min. Pumping level 345 ft at 200 gal/min when drilled. 1 2
809	do	do	1965	709	--	--	Kgna	475	--	--	N	N	Test hole. 1

* For chemical analyses of water, see Table 4.
1 Drillers' log in files of the Texas Department of Water Resources.
2 Geophysical logs in files of the Texas Department of Water Resources.
3 For water-level measurements, see Table 3.

DALLAS COUNTY

Table 1.--Records of Selected Water Wells--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing		Water bearing unit	Altitude of land surface (ft)	Water level		Method of lift	Use of water	Remarks
					Diameter (in.)	Depth (ft)			Below land-surface datum (ft)	Date of measurement			
*HR-33-09-801	Trinity River Authority	E. C. Stone Water Well Drilling Co.	1973	475	4	465	Kgw	430	290±	Aug. 23, 1973	S, E 1 1/2	Ind	Cemented to 465 ft. Gun perforated from 445-449 ft and open from 465-475 ft. Reported yield 15 gal/min. 1/ 2/
* 802	Gifford Hill and Co., Inc.	J. L. Myers Co.	1976	1,180	7 3	1,054 1,180	Kcpa	427	460	Apr. 9, 1976	S, E 25	Ind	Cemented to 1.054 ft. Screened from 1,054-1,090; 1,100-1,110; and 1,129-1,176 ft. Underreamed. Gravel packed. Pump set at 650 ft. Temp. 84°F. 1/ 2/
901	General Portland Cement Co.	J. L. Myers Sons	1940	1,500	--	--	Kcpa	492	--	--	N	N	--
* 902	do	do	1950	2,597	10 7	808 2,434	Kctm	575	300	1952	N	N	Screened from 2,410-2,495 and 2,515-2,570 ft. Reported yield 354 gal/min. Plugged. 2/
* 903	do	Layne-Texas Co.	1957	2,601	20 13 8	1,742 2,440 2,601	Kctm	564	563	Jan. 9, 1957	T, E 200	Ind	Screened from 2,440-2,584 ft. Pump set at 1,023 ft. Reported yield 500 gal/min. Pumping level 70[illegible] ft when drilled and 793.0 ft on June 19, 1972. 1/
* 904	Independent Water Co.	C. M. Stoner Drilling Co.	1950	1,325	7	--	Kcpa	413	--	--	N	N	Reported yield 100 gal/min.
905	do	N. C. Andrews	1946	728	4	--	Kgw	413	--	--	T, E	N	Reported yield 30 gal/min.
* 906	do	do	1947	787	4	--	Kgw	413	--	--	T, E	N	Do.
* 907	General Portland Cement Co.	B. J. Harper	1908	1,550	8	--	Kcpa	475	+ 40 220	1908 1942	N	N	Reported yield 260 gal/min. Destroyed.
* 908	do	Layne-Texas Co.	1965	1,557	14 8	1,263 1,514	Kcpa	575	534	Nov. 29, 1965	T, E 100	Ind	Cemented to 1,263 ft. Screened from 1,375-1,400; 1,410-1,452; and 1,472-1,504 ft. Underreamed. Gravel packed. Pump set at 800 ft. Pumping level 657 ft at 340 gal/min when drilled. Temp. 90°F. 1/
* 909	Texaco, Inc.	The Texas Co.	1913	2,373	12 8 6 5 4	-- -- -- -- --	Kctm	450	124.7	May 11, 1939	N	N	Perforated from 2,098-2,372 ft. Reported yield 330 gal/min. Temp. 96°F. 1/
* 910	do	B. J. Harper	1923	2,485	8	2,195	Kcpa, Kctm	460	149	July 1, 1942	N	N	Gun perforated from 1,415-1,425 and 2,160-2,170 ft. Flowed at 600 gal/min. Stopped flowing in 1926. Pumped at 750 gal/min. Temp. 86°F. 1/ 2/
* 911	do	do	1929	1,392	20 12 10	424 1,274 1,392	Kcpa	450	136	1929	N	N	Ten-inch perforated pipe. Temp. 87°F.
10-101	Dallas County Park Cities Water Conservation and Improvement District	Texas Water Wells	1953	2,400	10 8 6	1,010 1,970 2,400	Kctm	440	185.9 341.0	May 14, 1953 Aug. 1956	N	N	Cemented to 1,970 ft. Screened 189 ft in 10 intervals between 1,969-2,389 ft. Drawdown 237 ft pumping 844 gal/min in 1953. Plugged in 1957. 3/
102	City of Dallas	R. H. and Dearing Sons	1910	1,527	10 8	891 1,377	Kcpa	430	--	--	N	N	1/
103	do	do	1910	542	8	344	Kgw	430	--	--	N	N	1/
201	Coca Cola Co.	J. L. Myers Sons	1956	1,620	10 6	1,424 1,620	Kcpa	490	338	Dec. 10, 1956	S, E 60	Irr	Cemented to 1,424 ft. Screened from 1,426-1,447; 1,462-1,470; and 1,492-1,600 ft. Underreamed. Gravel packed. Pump set at 700 ft. Reported yield 200 gal/min. 1/ 2/

See footnotes at end of table.

Table 1.--Records of Selected Water Wells--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing		Water bearing unit	Altitude of land surface (ft)	Water level		Method of lift	Use of water	Remarks
					Diameter (in.)	Depth (ft)			Below land-surface datum (ft)	Date of measurement			
*HR-33-10-202	City of University Park	--	1915	2,850	12	--	Kctm	535	+ 46 105	1915 1942	N	N	Reported yield 550 gal/min in 1923. Plugged. 1/
203	do	--	--	2,800	--	--	Kctm	558	116.6	June 25, 1942	N	N	Reported yield 420 gal/min. Plugged.
204	City of Highland Park	R. H. Dearing and Sons	1923	2,861	8	2,570	Kctm	515	+ 10 112.0	1924 June 25, 1942	N	N	Open hole from 2,570-2,861 ft. Reported yield 1,000 gal/min. Plugged. 1/
* 301	Village Country Club	J. L. Myers Sons	1968	1,154	8 4	1,095 1,154	Kgw	580	330 364.4	June 1968 Oct. 15, 1974	T, E 30	Irr	Screened from 1,095-1,135 ft. 1/ 3/
* 302	Southern Methodist Univ.	Layne-Texas Co.	1925	2,999	8 6 5	580 2,681 2,999	Kctm	579	65 125	Apr. 12, 1925 1942	T, E 25	N	Slotted liner from 2,681-2,999 ft. 1/
* 401	Eastman Kodak	do	1953	2,689	14 8 6	898 2,434 2,689	Kctm	472	440.0 560.0	Dec. 6, 1965 Nov. 9, 1973	T, E 100	Ind	Screened from 2,435-2,651 ft. Pump set at 730 ft. Pumping level 363 ft at 644 gal/min on July 25, 1953, and 375 ft at 700 gal/min on May 11, 1954. Temp. 109°F. 1/ 2/ 3/
* 402	Exchange Park Utilities	J. L. Myers Sons	1956	1,527	10 6	1,332 1,527	Kcpa	428	276	Jan. 25, 1956	S, E 50	Ind	Cemented to 1,332 ft. Screened from 1,332-1,360; 1,385-1,390; 1,418-1,457; and 1,475-1,514 ft. Pump set at 700 ft. Reported yield 210 gal/min. Temp. 90°F. 1/ 2/
* 403	St. Paul's Hospital	do	1938	920	--	--	Kgw	460	--	--	N	N	1/
404	City of Dallas	R. H. Dearing and Sons	1910	1,405	10 8	767 1,225	Kcpa	410	--	--	N	N	Open hole from 1,225-1,405 ft. 1/
405	do	do	1910	693	6	441	Kgw	410	--	--	N	N	Open hole from 441-693 ft. 1/
501	Dallas Power and Light Co.	Layne-Texas Co.	1948	2,735	14 8 6 4	806 1,454 2,575 2,735	Kctm	414	81.5 105.1 215	Oct. 6, 1948 Nov. 13, 1948 1952	N	N	Cemented to 2,575 ft. Screened from 2,567-2,734 ft. Drawdown 140 ft at 525 gal/min when drilled. Pumping level 557 ft at 624 gal/min Aug. 1954. Plugged. 1/
502	Neuhoff Brothers Meats	J. L. Myers Sons	1953	774	8 6	695 774	Kgw	400	210	Jan. 28, 1953	T, E 50	Ind	Cemented to 695 ft. Screened from 714-774 ft. 1/
* 503	do	do	1940	770	12 8	-- 770	Kgw	400	--	--	T, E 50	Ind	Temp. 74°F.
* 504	City of Highland Park	B. J. Harper	1913	2,700	8 6	1,700 2,600	Kctm	500	+ 14.0 + 6.0	June 25, 1942 June 25, 1975	N	P	Open hole from 2,600-2,700 ft. Estimated flow of 5 gal/min in 1975. Temp. 80°F.
505	do	R. H. Dearing and Sons	1924	2,875	8 6	2,560 2,865	Kctm	500	+ 30 116.0	June 1924 June 25, 1942	T, E 150	N	Perforated 314 ft. Reported yield 1,200 gal/min. Originally drilled to 1,740 ft. 1/
506	Lone Star Industries Inc.	Combs Well Drilling	1969	50	30	50	Qal	405	--	--	S, E 5	Ind	Reported yield 50 gal/min.
507	City of Dallas	R. H. Dearing and Sons	1907	1,423	10 8	-- --	Kgw, Kcpa	410	+ 51.0	1907	N	N	1/
508	do	do	1911	800	--	--	Kgw	410	--	--	N	N	1/
509	do	B. J. Harper	1911	2,578	10 8 6 4	-- -- -- --	Kctm	410	+250 + 92	1912 1940	N	N	Perforated from 2,375-2,578 ft. Flowed 315 gal/min in 1923. 1/

See footnotes at end of table.

Table 1.--Records of Selected Water Wells--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing		Water bearing unit	Altitude of land surface (ft)	Water level		Method of lift	Use of water	Remarks
					Diameter (in.)	Depth (ft)			Below land-surface datum (ft)	Date of measurement			
*HR-33-10-510	City of Dallas	--	1902	2,585	10 8 6 4	-- -- -- --	Kcpa, Kctm	410	+290 + 20.0	1902 June 18, 1942	N	N	Six-inch casing perforated from 1,462-1,589 ft. Four-inch casing perforated from 2,120-2,200 ft. 1/
701	do	J. L. Myers Sons	1952	2,564	20 13 9	880 2,340 2,540	Kctm	418	225.0	Apr. 20, 1953	N	N	Screened from 2,340-2,530 ft. Gravel packed. Pumping level 488 ft at 1,480 gal/min on May 11, 1954; 590 ft at 1,350 gal/min on July 20, 1954; and 643 ft on Oct. 25, 1956. 1/ 2/ 3/
702	GAF Corporation	Layne-Texas Co.	1953	2,525	14 8 7 5	37 704 2,325 2,525	Kctm	440	222	Mar. 1953	T, E 75	Ind	Cemented to 704 ft. Mill slotted from 2,335-2,430 and 2,445-2,505 ft. Pumping level 335 ft at 200 gal/min when drilled; 526.0 ft on Aug. 27, 1956 at 175 gal/min; and 370 ft at 200 gal/min on Aug. 24, 1955. 1/ 2/
703	Lone Star Cement Co.	J. L. Myers Sons	1953	2,544	13 8 6	824 2,375 2,544	Kctm	435	200	Apr. 2, 1953	N	N	Screened from 2,375-2,544 ft. Reported yield 385 gal/min. Plugged. 1/
704	do	do	1956	2,585	13 8 6	1,000 2,385 2,585	Kctm	435	--	--	N	N	Screened from 2,412-2,585 ft. Pumping level 535 ft at 425 gal/min when drilled. Plugged. 1/
* 705	City of Dallas	R. H. Dearing	1930	2,634	18 8 6	604 2,307 2,634	Kctm	492	335.0 464.7 150	May 18, 1953 Mar. 14, 1956 1941	N	N	Reported yield 930 gal/min in 1935. Pumping level 489 ft at 776 gal/min on Aug. 18, 1953; 535 ft at 705 gal/min in Jan. 1954; and 565 ft at 500 gal/min on Oct. 25, 1956. Drawdown 240 ft at 930 gal/min in 1941. Capped. Temp. 104°F. 1/ 3/
706	Stevens Plaza Apartments	J. L. Myers Sons	1964	829	4 2	795 829	Kgw	500	405	Mar. 1964	S, E 5	P	Cemented to 795 ft. Screened from 975-825 ft. Gravel packed. 1/
801	City of Dallas	Texas Water Wells	1953	2,797	19 13 9	880 2,505 2,797	Kctm	425	209.5 318.3 455.1 509.00	May 5, 1953 Mar. 14, 1956 Nov. 11, 1970 Nov. 15, 1974	N	N	Screened from 2,590-2,790 ft. Pumping level 610 ft at 750 gal/min on Oct. 25, 1956 and 375 ft at 618 gal/min in 1953. 2/ 3/
802	Dallas Power and Light Co.	Layne-Texas Co.	1950	2,728	16 8 6	796 2,495 2,728	Kctm	402	110 412	May 8, 1950 July 3, 1975	T, E 300	Ind	Mill slotted from 2,502-2,707 ft. Pump set at 750 ft. Measured yield 825 gal/min 1975. Pumping level 360 ft at 1,155 gal/min when drilled. 1/ 2/
* 803	Sears, Roebuck and Co.	R. H. Dearing and Sons	1913	1,658	8 6	-- --	Kcpa	432	--	--	T, E 40	Ind	Reported yield 190 gal/min. Temp. 90°F.
* 804	Dallas Power and Light Co.	do	1924	1,631	12 8 6	615 1,446 1,620	Kcpa	404	183 208	1933 1942	S, E 60	Ind	Completed from 1,446-1,620 ft. Pump set at 429 ft. Measured yield 288 gal/min in 1975. Temp. 96°F. 1/
805	do	Layne-Texas Co.	1948	2,758	16 8 6	697 2,542 2,758	Kctm	411	44.7 81.6 210 413.0	Apr. 14, 1948 Nov. 13, 1948 1952 July 3, 1975	T, E 150	Ind	Slotted from 2,534-2,735 ft. Pump set at 680 ft. Measured yield 600 gal/min 1975. Pumping level 285.7 ft at 1,041 gal/min on Mar. 12, 1948; 537 ft at 1,090 gal/min July 1955; and 620 ft on Aug. 1956. Temp. 116°F. 1/ 2/
806	do	do	1950	2,754	16 8 6	801 2,549 2,754	Kctm	414	136 210 373.0	Mar. 9, 1950 1952 July 3, 1975	T, E 300	Ind	Mill slotted from 2,556-2,754 ft. Pump set at 700 ft. Measured yield 900 gal/min 1975. Pumping level 351.0 ft at 1,180 gal/min when drilled. 1/ 2/

See footnotes at end of table.

DALLAS COUNTY

Table 1.--Records of Selected Water Wells--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Water bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*HR-33-10-807	Union Terminal Co.	R. H. Dearing and Sons	1925	2,776	12 8 6 5	90 2,461 2,601 2,776	Kctm	425	190 346.0	1952 Dec. 2, 1955	N	N	Cemented from 1,505-2,604 ft. Mill slotted from 2,604-2,711 ft. Reported yield 150 gal/min 1961. Pumping level 370.0 ft Apr. 1956 and 488.0 ft Oct. 1956. 1/ 2/
808	Dallas County	--	1890	740	8 7	12 696	Kgw	430	340.0 370.0	Dec. 9, 1954 Mar. 7, 1957	N	N	Drawdown 30 ft pumping 112 gal/min on Dec. 8, 1954. Plugged. Temp. 83°F.
809	do	R. H. Dearing and Sons	1927	1,637	8 6	-- --	Kcpa	430	288.0	Jan. 11, 1955	N	N	Pumping level 342 ft at 135 gal/min on Jan. 11, 1955. Plugged.
* 810	Merchandise Mart	do	1910	1,660	8 6	926 1,557	Kcpa	450	94 200	1920 1934	N	N	Open hole from 1,557-1,660 ft. Reported yield 50 gal/min. 1/
813	Liquid Carbonic Co.	J. L. Myers Sons	1956	873	16 10	688 873	Kgw	420	354	July 28, 1956	N	N	Cemented to 688 ft. Screened from 688-760; 786-812; 826-838; and 848-858 ft. Underreamed. Gravel packed. Plugged. 1/
815	Dallas Concrete Co.	do	1952	856	6 4	811 856	Kgw	395	230	Nov. 22, 1952	N	N	Perforated from 812-856 ft. Reported yield 100 gal/min. Destroyed. 1/
* 816	First National Bank Building	R. H. Dearing and Sons	1917	1,970	12 8	394 1,514	Kcpa	430	--	--	N	N	Open hole from 1,514-1,970 ft. Reported yield 90 gal/min. Temp. 98°F. 1/
* 817	Southwestern Life Ins. Building	do	1912	1,618	8 6	1,014 1,668	Kcpa	435	187.0	Oct. 1935	N	N	Open hole from 1,520-1,618 ft. 1/
818	Mobil Magnolia Building	Mobil Oil Co.	1920	1,668	13 8	358 1,668	Kcpa	435	287	Dec. 1, 1952	T, E 40	N	Perforated from 1,499-1,668 ft. Reported yield 160 gal/min.
820	Oak Farms Dairy	--	--	1,700	8	--	Kcpa	418	--	--	T, E 40	Ind	Reported yield 205 gal/min. Temp. 95°F.
821	Gifford-Hill and Co., Inc.	J. L. Myers Sons	1973	830	7 3	752 830	Kgw	438	330	June 7, 1973	S, E 25	Ind	Cemented to 752 ft. Screened from 752-815 ft. Underreamed. Gravel packed. Pump set at 600 ft. 1/ 2/
* 822	City of Dallas	Randolph and Steil-smith	1924	2,750	26 10	30 2,700	Kctm	407	53 96	1934 1943	N	N	Pumping level 267 ft at 1,288 gal/min in 1937 and drawdown of 178 ft at 1,000 gal/min in 1941. Plugged. Temp. 110°F. 3/
* 823	do	--	1920	2,773	10 8 6	1,632 2,466 2,773	Kctm	422	+ 90.1 +.46.2 59.0 78.0	Nov. 12, 1923 1925 1933 1937	N	N	Flowed at 510 gal/min in 1922 and 322 gal/min in 1924. Stopped flowing about 1931. Drawdown 155 ft pumping 920 gal/min in 1941. Plugged. 1/
* 824	Adolphus Hotel	R. H. Dearing and Sons	1925	1,660	12 10 8 6	747 784 1,512 1,660	Kcpa, Kgw	430	--	--	N	N	Perforated from 747-784 ft and partially perforated between 1,512-1,660 ft. Reported yield 390 gal/min. 1/
* 825	Praetorian Building	do	1908	1,618	6 5 4	600 1,500 1,520	Kcpa	437	+210 240	1908 1942	A, E 10	N	Reported yield 72 gal/min. Temp. 93°F. 1/
826	Baker Hotel	do	1925	806	12 10	753 771	Kgw	432	--	--	T, E 60	N	Perforated from 721-762 ft. Pump set at 530 ft. Reported yield 300 gal/min. 1/
827	City of Dallas	--	1912	--	6	--	Kctm	400	+254 131.0	1912 June 20, 1942	N	N	3/
* 828	Dallas Power and Light	--	1898	570	8	--	Kgw	410	157	Aug. 27, 1928	N	N	Reported yield 67 gal/min in 1942. Plugged back from 650 ft in 1930.

See footnotes at end of table.

DALLAS COUNTY

Table 1.--Records of Selected Water Wells--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing		Water bearing unit	Altitude of land surface (ft)	Water level		Method of lift	Use of water	Remarks
					Diameter (in.)	Depth (ft)			Below land-surface datum (ft)	Date of measurement			
*HR-33-10-829	Dallas Power and Light	--	1907	1,427	8 5	-- 1,420	Kcpa	410	213	Nov. 25, 1930	N	N	Reported yield 200 gal/min from 1934-1941.
* 830	Dallas Office and Club Building	B. J. Harper	1922	1,650	8	--	Kcpa	460	180	1942	T, E 25	N	Reported yield 230 gal/min in 1942.
831	Dallas Power and Light Co.	Layne-Texas Co.	1948	1,645	--	--	Kcpa	410	251.0	Nov. 16, 1948	N	N	Drawdown 237 ft pumping 166 gal/min on Nov. 16, 1948. 2/
* 901	Proctor and Gamble	Harper and Green	1922	2,650	12	--	Kctm	410	+ 25	1922	T, E 20	N	Flowed until 1928. Temp. 110°F.
* 902	Baylor University Hospital	--	1907	974	8	--	Kgw	470	250	1940	T, E 25	N	Reported yield 235 gal/min. Temp. 93°F.
903	Gulberson Corporation Dresser Industries	Layne-Texas Co.	1956	2,695	--	--	Kctm	402	--	--	N	N	Well is used to test oil well pumps and packers. 2/
11-101	City of Dallas	do	1953	3,206	20 13 9	880 2,960 3,206	Kctm	462	187 249.2	Sept. 8, 1953 Mar. 14, 1956	N	N	Screened from 2,963-3,203 ft. Underreamed. Gravel packed. Drawdown of 237 ft at 1,350 gal/min on Dec. 28, 1953, and 649 ft on Feb. 8, 1954. Plugged. 2/
201	Hudson Airport	S. W. Richardson	1945	2,143	8 6	-- --	Kcpa	595	--	--	N	N	Destroyed. 2/
* 301	Dallas Athletic Country Club	Layne-Texas Co.	1953	2,367	10	1,977 2,367	Kcpa	525	--	--	T, E 75	Irr	Temp. 105°F. 2/
401	Lakewood Country Club	R. H. Dearing and Sons	1926	1,880	8 6	1,047 1,880	Kcpa	525	121.4	July 9, 1942	N	N	Perforated. 1/
* 701	Dallas Power and Light	Layne-Texas Co.	1956	3,184	26 20 13 9	60 1,250 2,895 3,145	Kctm	410	--	--	S, E 450	Ind	Cemented to 2,894 ft. Screened from 2,900-3,135 ft. Pumping level 594 ft at 1,344 gal/min on July 16, 1969; 577 ft on Mar. 23, 1972; 607 ft at 1,309 gal/min on Dec. 13, 1973; and 632 ft at 1,277 gal/min on July 11, 1974. Temp. 117°F. 1/ 2/
* 702	do	do	1952	3,200	20 13 8	880 2,990 3,200	Kctm	425	106	May 9, 1952	T, E 400	Ind	Cemented to 880 ft. Screened from 2,990-3,190 ft. Underreamed. Gravel packed. Pumping level 419 ft at 2,180 gal/min when drilled; 705 ft at 874 gal/min on Dec. 13, 1973; and 813 ft at 1,005 gal/min on July 11, 1974. Measured yield 1,134 gal/min on July 16, 1969. Temp. 118°F. 1/ 2/
* 703	do	do	1952	3,180	20 13 8	880 2,962 3,180	Kctm	415	130	Oct. 25, 1952	T, E 400	Ind	Cemented to 880 ft. Screened from 2,963-3,003; 3,013-3,043; 3,048-3,178 ft. Underreamed. Gravel packed. Pumping level 390 ft at 1,925 gal/min when drilled; 569 ft at 1,691 gal/min on Aug. 23, 1972; 677 ft at 1,584 gal/min on Dec. 13, 1973; and 696 ft at 1,277 gal/min on July 11, 1974. Measured yield 1,767 gal/min on July 16, 1969. Temp. 115°F. 1/ 2/
* 801	Buckner Baptist Children's Home	J. L. Myers Sons	1946	2,307	10 8 6	600 2,115 2,307	Kcpa	565	240	1946	T, E 75	P	Perforated from 2,081-2,307 ft. Woodbine from 1,110-1,470 ft and top of Paluxy at 2,100 ft. Temp. 104°F.
* 802	do	do	1958	1,330	10 6	1,240 1,330	Kgw	565	--	--	T, E 75	P	Perforated from 1,241-1,310 ft. Reported yield 300 gal/min. 1/
804	do	R. H. Dearing and Sons	1915	1,343	5	1,148	Kgw	565	180.0	June 22, 1942	N	N	Open hole from 1,148-1,343 ft. 1/
805	do	do	1925	3,368	--	--	Kctm	565	--	--	N	N	Used for irrigation. 1/

Table 1.--Records of Selected Water Wells--Continued

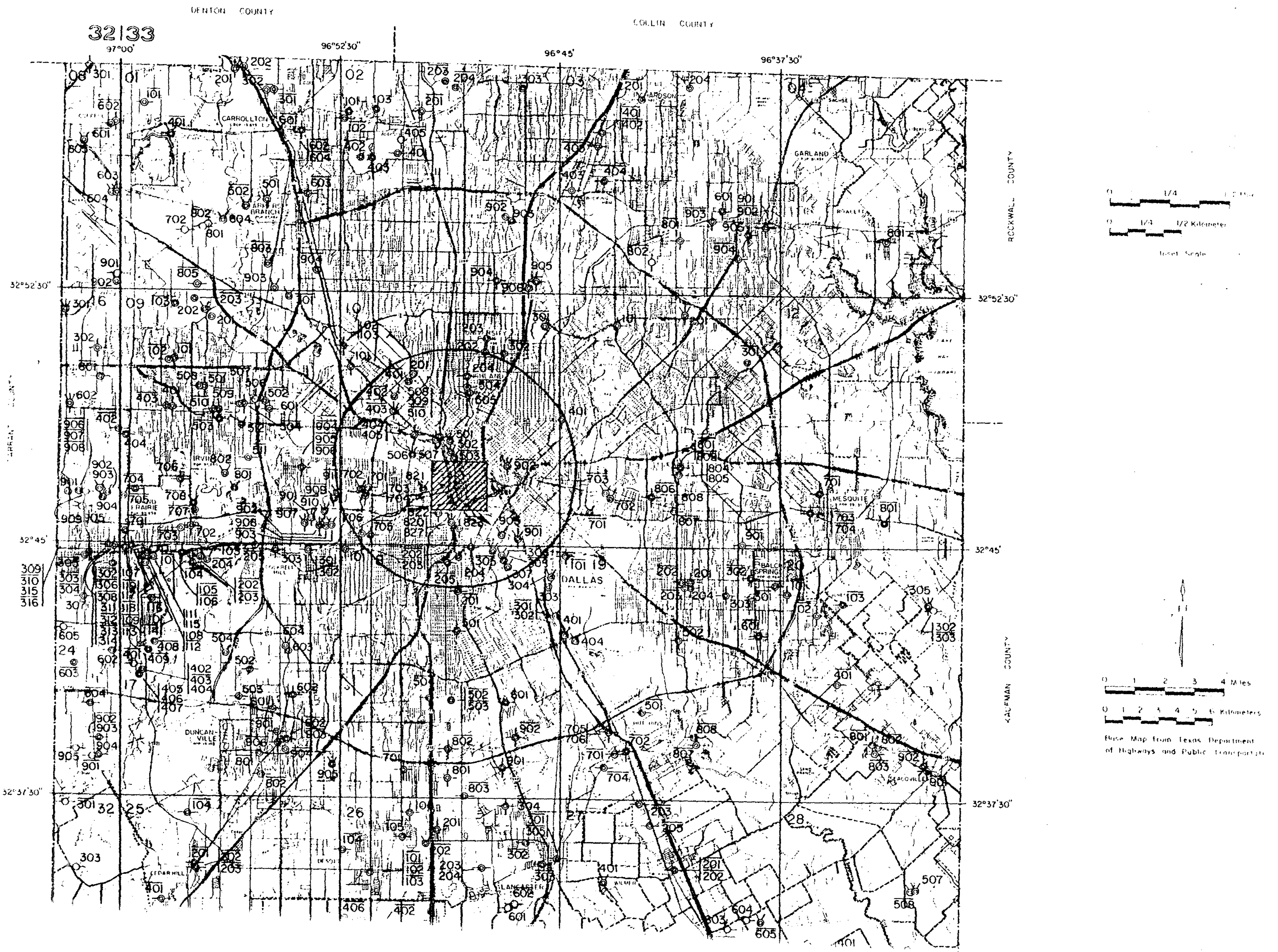
Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Water bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*HR-33-17-901	City of Duncanville	J. L. Myers Sons	1955	2,641	13 8 5	1,046 2,503 2,641	Kctm	735	593 806.0	Mar. 26, 1955 Jan. 24, 1968	S, E 100	P	Cemented to 2,503 ft. Screened from 2,521-2,531 and 2,541-2,631 ft. Gravel packed. Pump set at 917 ft. Reported yield 275 gal/min. Pumping level 685 ft at 410 gal/min when drilled and 852.0 ft at 275 gal/min on Jan. 24, 1968. 1/ 2/
* 902	do	C. H. Stoner Drilling Co.	1944	810	--	--	Kgw	715	--	--	S, E 30	P	Pump set at 605 ft. Reported yield 90 gal/min.
* 903	do	J. L. Myers Sons	1948	1,618	10 6 5	775 1,518 1,618	Kcpa	715	644.0	Jan. 24, 1968	S, E 50	P	Slotted from 1,518-1,598 ft. Pump set at 762 ft. Reported yield 110 gal/min. Pumping level 708.0 ft at 155 gal/min on Jan. 24, 1968, 1/
* 904	Duncanville School District	do	1953	828	8	726	Kgw	725	--	--	S, E 30	Irr	Reported yield 75 gal/min. Temp. 74°F.
905	Go-Crete	do	1962	970	7 3	914 968	Kgw	680	490	July 1962	S, E 5	Ind	Cemented to 914 ft. Screened from 917-932 and 938-963 ft. Gravel packed. 1/
* 906	Fred Hastings	Ted Shutt	1910	750	8	750	Kgw	730	320	Aug. 1, 1942	C, G 6	N	--
18-101	City of Dallas	R. H. Dearing and Sons	1927	2,652	12 8	587 2,297	Kctm	560	--	--	N	N	1/
* 201	do	Layne-Texas Co.	1938	2,883	18 10 8	654 2,620 2,883	Kctm	515	175 184.5 240 392.3	July 29, 1938 Feb. 9, 1949 1952 Apr. 9, 1955	N	N	Screened from 2,620-2,883 ft. Underreamed. Gravel packed. Estimated yield 1,000 gal/min. Pumping level 373 ft at 1,158 gal/min when drilled; 513 ft at 1,600 gal/min in 1941; and 570 ft at 850 gal/min in 1952. Plugged in 1955. Temp. 115°F. 1/
* 202	Clevepak Corporation	--	--	860	--	--	Kgw	450	--	--	T, E 75	Ind	Reported yield 190 gal/min.
203	do	J. L. Myers Sons	1948	2,759	13 8 6	762 2,605 2,759	Kctm	451	140	1952	T, E 200	Ind	Mill slotted from 2,607-2,759 ft. Reported yield 750 gal/min. Pumping level 272 ft at 500 gal/min when drilled; 500 ft at 750 gal/min in Mar. 1953; and 500 ft in 1955. 2/
204	George Hormel Co.	Layne-Texas Co.	1948	827	14 8	707 827	Kgw	400	334	May 4, 1959	T, E 60	N	Screened from 707-816 ft. Pumping level 401 ft at 330 gal/min when drilled. 1/ 2/
* 205	City of Dallas	B. J. Harper	1924	2,745	13 8 6	701 2,390 2,745	Kctm	475	96 132 141 272	1934 1941 1949 1953	N	N	Screened. Pumping level 315 ft at 1,040 gal/min in June 1942; 490 ft at 760 gal/min on Aug. 12, 1953; and 560 ft at 575 gal/min on Oct. 25, 1956. Flowed when drilled.
* 301	Certain-Teed Products	J. L. Myers Sons	1946	30	8	--	Qal	410	17	1961	T, E 3	Irr	Reported yield 75 gal/min. Temp. 73°F.
302	do	do	1946	30	8	--	Qal	410	--	--	T, E 3	Irr	--
303	W. E. Grace	--	1912	1,000	6 4	500 1,000	Kgw	410	400	1961	T, E 7 1/2	Ind	Reported yield 50 gal/min.
304	Metzger Dairy	Metzger	1954	25	60	26	Qal	420	16	1961	J, E 5	Ind	--
* 305	Columbia Packing Co.	J. L. Myers Sons	1940	817	8 6	779 817	Kgw	415	150	Mar. 1940	T, E 25	Ind	Perforated from 778-817 ft. Pump set at 470 ft. Temp. 75°F. 1/
306	Dallas City Packing Co.	do	1946	944	8 7	808 944	Kgw	406	--	--	T, E 25	Ind	Completed from 779-944 ft. Pump set at 450 ft. 1/ 2/

See footnotes at end of table.

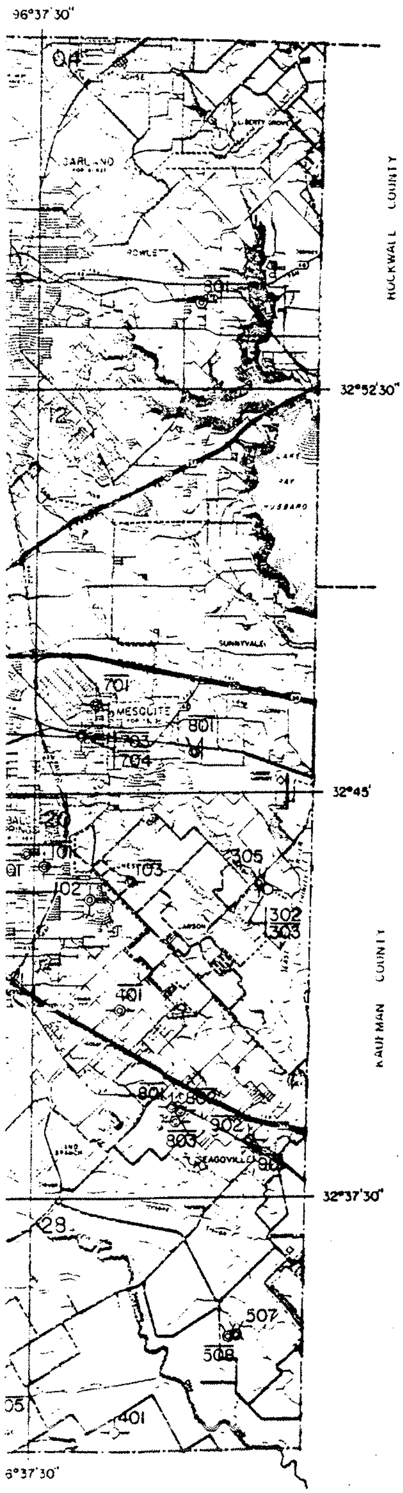
Table 1.--Records of Selected Water Wells--Continued

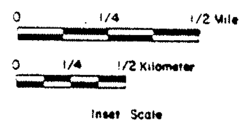
Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Water bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
HR-33-18-307	Valcar Enterprises of Texas, Inc.	--	--	--	--	--	Kgw	410	--	--	T, E 15	Ind	--
* 308	Dal Chrome Co.	--	1969	939	7 3	852 939	Kgw	408	348	Sept. 26, 1969	S, E 20	Ind	Cemented to 852 ft. Screened from 852-897 and 912-919 ft. Gravel packed. Pump set at 558 ft. 1/ 2/
501	City of Dallas	B. J. Harper	1930	2,922	18 8	588 2,922	Kctm	500	--		N	N	1/
* 502	Laurel Land Memorial Park	R. H. Dearing and Sons	1923	853	6	850	Kgw	590	230	1941	T, E 10	Irr	Reported yield 77 gal/min. Temp. 82°F.
* 503	do	Wallen and Sons	1937	859	6 5	754 859	Kgw	570	230	do	W	Irr	Temp. 82°F. 1/
* 504	Beckley Heights Addition	J. L. Myers Sons	1948	1,782	8 5	720	Kgw, Kcpa	593	--	--	N	N	Information from electric log only. Well was plugged. Marks on long indicate possibility of Woodbine completion. 2/
601	Community Water Service	--	--	1,100	10	--	Kgw	545	130	1961	S, E 7 1/2	P	--
* 701	do	J. L. Myers Sons	1958	1,140	5 4	618 1,140	Kgw	678	--	--	N	N	Reported yield 50 gal/min.
* 801	do	Layne-Texas Co.	1957	1,210	8 4	915 1,210	Kgw	652	--	--	N	N	Cemented to 915 ft. Screened from 1,015-1,030; 1,053-1,063; and 1,105-1,145 ft. Reported yield 130 gal/min. 1/ 2/
* 802	do	--	1946	914	4	--	Kgw	620	--	--	N	N	Reported yield 20 gal/min.
* 803	City of Lancaster	Layne-Texas Co.	1973	3,091	16 13 9	2,000 2,880 3,091	Kctm	655	720	Nov. 6, 1973	T, E 400	P	Cemented to 2,880 ft. Screened from 2,904-2,908; 2,932-2,936; 2,998-3,013; 3,064-3,068; and 3,078-3,088 ft. Underreamed. Gravel packed. Drawdown 163 ft pumping 1,051 gal/min when drilled. Temp. 115°F. 1/ 2/
901	Lancaster Area Water Service Inc.	C. M. Stoner Drilling Co.	1955	1,164	6	--	Kgw	578	500	1961	N	N	--
* 902	Urban Services	--	1947	1,101	--	--	Kgw	586	--	--	N	N	--
* 19-101	City of Dallas	Layne-Texas Co.	1952	3,076	20 13 9	880 2,842 3,076	Kctm	405	222.5 286.0 385.8 448.2	May 7, 1954 Nov. 19, 1957 Mar. 15, 1971 Aug. 11, 1975	N	N	Cemented to 880 ft. Screened from 2,844-3,064 ft. Underreamed. Gravel packed. Drawdown 229 ft at 1,370 gal/min Apr. 1953; 566.0 ft pumping level on Feb. 9, 1954; and 592 ft at 1,475 gal/min on Oct. 25, 1956. Temp. 115°F. 1/ 2/ 3/
201	do	J. L. Myers Sons	1953	3,672	20 13 9	900 3,107 3,601	Kctm	493	293.8	Mar. 14, 1956	N	N	Reported yield 1,840 gal/min. Pumping level 580 ft 2,150 gal/min Oct. 23, 1953; 642 ft at 2,150 gal/min on Dec. 29, 1953; 653 ft at 2,025 gal/min on Feb. 29, 1954; and 660 ft on Oct. 25, 1956. 2/
* 202	Community Water Service	B. J. Harper	1931	1,260	8 6	-- 1,260	Kgw	485	135	Mar. 1942	N	N	Eight-inch casing to top of sand. Perforated 6-inch liner. Reported yield 150 gal/min in 1942. Plugged.
* 203	City of Dallas	J. L. Myers Sons	1946	1,476	10 7 6	508 1,166 1,476	Kgw	487	190	Apr. 22, 1946	N	N	Pumping level 340 ft at 200 gal/min when drilled. Plugged. 1/
204	do	Layne-Texas Co.	1948	2,203	12 10 8	620 2,105 2,203	Kcpa	485	--	--	N	N	2/

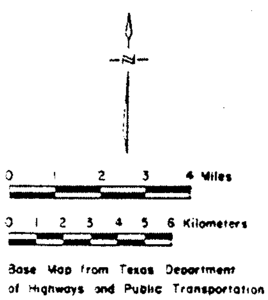
See footnotes at end of table.

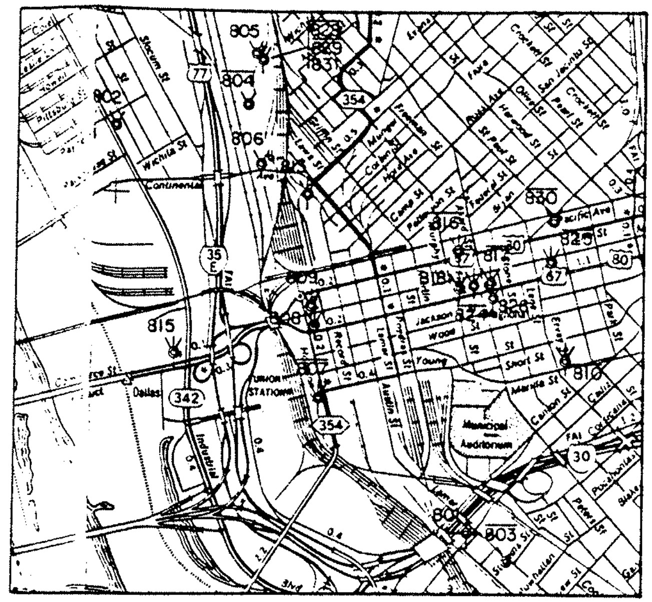


32|33
DENTON COUNTY
COLLIN COUNTY
ROCKWALL COUNTY
KAUFMAN COUNTY
97°00'
96°52'30"
96°45'
96°37'30"
32°52'30"
32°45'
32°37'30"
CARROLLTON
GARLAND
IRVING
GRAND PRAIRIE
MESQUITE
DALLAS
DUNCANVILLE
CEDAR HILL
LANCASTER
BALCH SPRINGS
RICHARDSON
HIGHLAND
0 1/4 1/2 Kilometer
Inset Scale
0 1 2 3 4 Miles
0 1 2 3 4 5 6 Kilometers
Base Map from Texas Department of Highways and Public Transportation









Inset

EXPLANATION

Public supply well

Industrial well

Irrigation well

Domestic or livestock well

Oil or gas well

Test hole

Unused or abandoned well

Solid circle indicates flowing well

201

Line above well number indicates chemical analysis given in Table 4

Location of Selected Water, Oil, and Gas Wells in Dallas County

REFERENCE 18

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

July 15, 1991

Mr. Alex Zocchi
ICF Kalser Engineers
1509 Main Street
Suite 900
Dallas, Texas 75201

Re: Texas' Wellhead Protection (WHP) Program

Dear Mr. Zocchi:

I would like to thank you for your recent inquiry on Texas' WHP Program. The program is jointly administered by the Texas Water Commission (lead agency) and the Texas Department of Health (TDH). On June 19, 1989, the State of Texas submitted its WHP program description to the Environmental Protection Agency (EPA), pursuant to Section 1428 of the Safe Drinking Water Act (SDWA), as amended in 1986. Under Section 1428, EPA is required to evaluate each State program to determine whether it is adequate to protect public water supply (PWS) wells from contaminants that may have any adverse effects on public health. On March 19, 1990, Texas' WHP Program was fully approved by EPA for the purposes of Section 1428 of the SDWA. Because the program description is approximately 300 pages long, I will be happy to provide you with highlights and requirements contained within our program description.

Designation of a restricted use area around a public drinking water well is one way of protecting underground water supplies. This area is referred to as a wellhead protection area and it is defined as the surface and subsurface area surrounding a public water well or well field through which contaminants could likely pass and eventually reach the ground water supply.

The basic concept of the program is the minimization of land use restrictions while maximizing ground water protection. To accomplish this, the Texas Water Commission (TWC) delineates WHP areas based on aquifer parameters, a five-year travel time for potential contaminants, and best professional judgement to prevent ground water contamination. The TDH reviews contingency plans for the provision of alternate water supplies in the event of contamination of the existing source. Local governments provide an inventory of all potential sources of contaminants within their WHP areas; then they implement the program. Guidance to local governments with respect to the inventory of potential contaminant sources, and other required technical assistance as needed, is provided by the TWC and the TDH.

Since Section 26.177 of the Texas Water Code requires that every city of the state having a population of 5,000 inhabitants or more establish a water pollution control and abatement program for the city which includes the inventorying and monitoring of potential contamination sources, the TWC encourages formal participation in the WHP program. Formal participation involves: 1) the TWC providing official WHP area delineations; 2) the entity conducting an inventory of all potential contaminant sources; 3) the TWC and the TDH preparing an official report which is used to brief the participating entity; 4) the entity then enacting appropriate best management practices to prohibit or control the inventoried sources which are a threat to ground water; and 5) lastly, the entity conducting a re-inventory of potential pollution sources at two to five year intervals which is provided to the sate for updating purposes.

An entity which participates in the program realizes immediate benefits in that it is assured that its ground water supply is better protected form the many potential contaminant sources. As additional incentive, those PWS systems which can demonstrate a lower risk from potential contamination may be granted reduced well monitoring requirements by the TDH.

I hope this brief overview has helped you understand how our program functions. In addition, I have enclosed a list of communities currently participating in wellhead protection. Should you have any questions, please feel free to contact me at 512/371-6332.

Sincerely,

David P. Terry, M.En.
Ground Water Section

DPT:km

Enclosure

WELLHEAD PROTECTION PROGRAM ASSESSMENT

CITY	# OF WELLS	# OF WHP AREAS	START DATE	RPT DATE
Alamo,City of	2	1	09/20/89	/ /
Alvin,City of	5	3	02/07/88	/ /
Amarillo,City of	106	0	06/07/89	/ /
Atlanta,City of	4	2	12/06/89	08/15/90
Bardwell,City of	2	1	06/06/91	/ /
Bartlett,City of	2	2	04/26/89	08/30/90
Bartonville Water Supply Corp.	4	3	09/15/89	/ /
Bay City,City of	6	5	05/04/89	08/15/90
Beaumont,City of	3	3	01/17/89	/ /
Benbrook,City of	16	10	04/02/91	/ /
Bethany Water Supply Corp	6	2	05/24/91	/ /
Bevil Oaks,City of	2	1	01/17/89	08/08/90
Brazoria,City of	3	2	01/17/89	08/30/90
Bridge City,City of	3	2	01/17/89	/ /
Bryan,City of	8	8	10/27/88	/ /
Buckholts,City of	1	1	01/17/89	08/30/90
Carrollton,City of	1	1	11/10/89	/ /
Charterwood M.U.D.	2	1	10/03/89	/ /
China,City of	3	1	01/17/89	/ /
Claude,City of	4	4	05/25/89	/ /
Clear Lake,City of	6	2	04/18/90	05/01/91
Cleveland,City of	5	3	12/01/88	/ /
Colony,The	7	4	04/22/91	/ /
Commerce,City of	7	7	04/02/91	/ /
Cumby,City of	4	1	07/05/89	08/01/90
Deer Park,City of	3	3	03/20/89	08/31/90
Del Rio,City of	4	1	10/01/86	12/01/86
Desoto,City of	1	1	05/09/91	/ /
Devine,City of	6	6	10/27/88	/ /
Dimmitt,City of	13	0	06/07/89	/ /
Dumas,City of	13	13	06/07/88	12/01/88
Eagle Bluff Assoc. Inc.	2	1	05/02/89	06/30/89
El Paso,City of	137	44	11/01/89	05/01/90
Eldorado Air Force Station	2	2	03/24/89	/ /
Fayette WSC	4	4	10/10/89	08/08/90
Flo Community WSC	3	2	10/27/88	08/08/90
Fort Bliss	14	10	01/15/90	07/20/90
Friendswood,City of	6	6	12/11/89	/ /
Friona,City of	11	3	06/07/89	/ /
Frost,City of	2	1	04/02/91	/ /
Gause,City of	1	1	01/17/89	08/31/90
George West,City of	2	1	04/16/90	/ /
Grand Prairie,City of	12	12	03/01/89	/ /
Groom,City of	2	2	07/12/88	12/01/88
Gruver,City of	2	1	06/07/89	/ /
Gunter Rural Water Supply Corp	3	2	06/06/91	/ /
Haslet,City of	3	2	06/06/91	/ /
Hereford,City of	29	0	05/17/89	/ /
Hildalgo,City of	3	1	01/17/89	/ /

WELLHEAD PROTECTION PROGRAM ASSESSMENT

CITY	# OF WELLS	# OF WHP AREAS	START DATE	RPT DATE
Houston,City of	214	0	06/06/90	/ /
Hurst,City of	6	6	10/27/88	05/25/89
Irving,City of	5	5	10/27/88	01/04/91
Jacksonville,City of	5	2	09/12/89	/ /
Johnson Co. Fresh Water Dist.1	7	3	06/06/91	/ /
Jourdanton,City of	3	3	10/27/88	/ /
Katy,City of	5	5	05/24/88	12/01/88
Keller,City of	11	6	05/09/91	/ /
Kennedale,City of	4	4	12/21/87	04/01/88
Kilgore,City of	9	9	10/27/88	/ /
Kingwood,City of	8	8	10/27/88	/ /
Kirby,City of	2	1	10/10/89	/ /
Kountze,City of	2	1	01/17/89	/ /
Kress,City of	4	2	07/19/89	/ /
Lamar I.S.D.	3	3	05/24/88	12/01/88
Lamesa,City of	8	1	10/10/89	/ /
Little Elm,Town of	8	4	04/22/91	/ /
Lumberton,City of	3	3	01/17/89	/ /
Maloy Water Supply Corporation	1	1	06/06/91	/ /
Marlow WSC	0	2	01/17/89	08/08/90
Martindale,City of	1	1	05/02/89	/ /
McLean,City of	4	4	07/12/88	12/01/88
Meeker,City of	2	1	01/17/89	/ /
Mercedes,City of	1	1	09/20/89	/ /
Midlothian,City of	2	2	05/21/91	/ /
Milano WSC	2	2	01/17/89	08/15/90
Military Highway WSC	2	2	10/10/89	/ /
Mineola,City of	3	3	10/10/89	/ /
Minerva WSC	2	2	01/17/89	08/08/90
Nash,City of	2	2	05/18/89	11/01/89
New Caney,City of	2	2	11/15/90	/ /
North Milam WSC	4	4	01/17/89	/ /
North Shore Water Supply Corp	2	2	05/09/91	/ /
Orange Grove,City of	2	2	10/27/88	02/01/90
Orange,City of	4	3	01/17/89	/ /
Ovilla Community System	2	1	04/22/91	/ /
Panhandle,City of	3	3	07/12/88	12/01/88
Panola,City of	2	2	01/17/89	/ /
Pantego,City of	6	2	05/24/91	/ /
Perryton,City of	11	11	06/07/88	12/01/88
Pinehurst,City of	2	1	01/17/89	/ /
Pinewood,City of	2	2	01/17/89	/ /
Plainview,City of	16	1	10/27/88	/ /
Pleasanton,City of	9	9	10/27/88	/ /
Porter W.S.C.	5	5	10/23/90	/ /
Poth,City of	2	2	10/27/88	08/08/90
Quail Valley Util. Dist.	4	4	10/27/88	/ /
Queen City,City of	1	1	05/15/90	08/30/90
Quitaque,City of	2	1	03/08/91	/ /

WELLHEAD PROTECTION PROGRAM ASSESSMENT

CITY	# OF WELLS	# OF WHP AREAS	START DATE	RPT DATE
Red Oak,City of	5	2	05/09/91	/ /
Redwater,City of	2	2	05/17/89	01/01/90
Refugio,City of	3	2	02/23/90	/ /
Rockdale,City of	5	5	01/17/89	08/31/90
Rocksprings,City of	2	2	10/27/88	/ /
Rosenberg,City of	5	5	05/24/88	12/01/88
Salado W.S.C.	4	1	08/23/90	/ /
San Marcos,City of	4	2	10/27/88	/ /
Shallowater,City of	7	1	04/23/90	/ /
Shenandoah,City of	2	2	10/16/90	/ /
Silsbee,City of	3	3	01/17/89	08/10/90
Sinton,City of	3	3	10/27/88	02/01/90
Skellytown,Town of	4	4	05/31/89	/ /
Smithville,City of	3	1	10/27/88	/ /
Sonora,City of	5	1	12/20/89	/ /
Sour Lake,City of	2	2	01/17/89	/ /
Southwest Milam WSC	5	5	01/17/89	08/30/90
Spearman,City of	5	3	03/07/91	/ /
Stephenville,City of	29	17	04/22/91	/ /
Sterling,City of	9	4	10/27/88	/ /
Stinnett,City of	2	0	05/18/89	/ /
Sugarland,City of	7	4	01/17/89	/ /
Sweeny,City of	3	1	09/01/89	11/01/89
Tyler,City of	13	13	10/27/88	/ /
Venus,City of	2	2	04/02/91	/ /
Victoria,City of	15	12	10/15/90	/ /
Vidor,City of	3	3	01/17/89	/ /
West Orange,City of	2	1	01/17/89	/ /
White Deer,City of	3	3	07/12/88	12/01/88
Wilmer,City of	2	2	07/11/90	/ /
*** Total ***				
	1059	444		

REFERENCE 19

CITY OF DALLAS

FAX COVER SHEET
DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION
FLOOD PLAIN MANAGEMENT & EROSION CONTROL DIVISION
OAK CLIFF MUNICIPAL CENTER
320 EAST JEFFERSON BOULEVARD, ROOM 321
DALLAS, TEXAS 75203

DATE: 7/18/95 TIME: 3:05

NUMBER OF SHEETS BEING FAXED (INCLUDING COVER SHEET) 2

PLEASE DELIVER THE FOLLOWING TO:

NAME: LANA OCKER

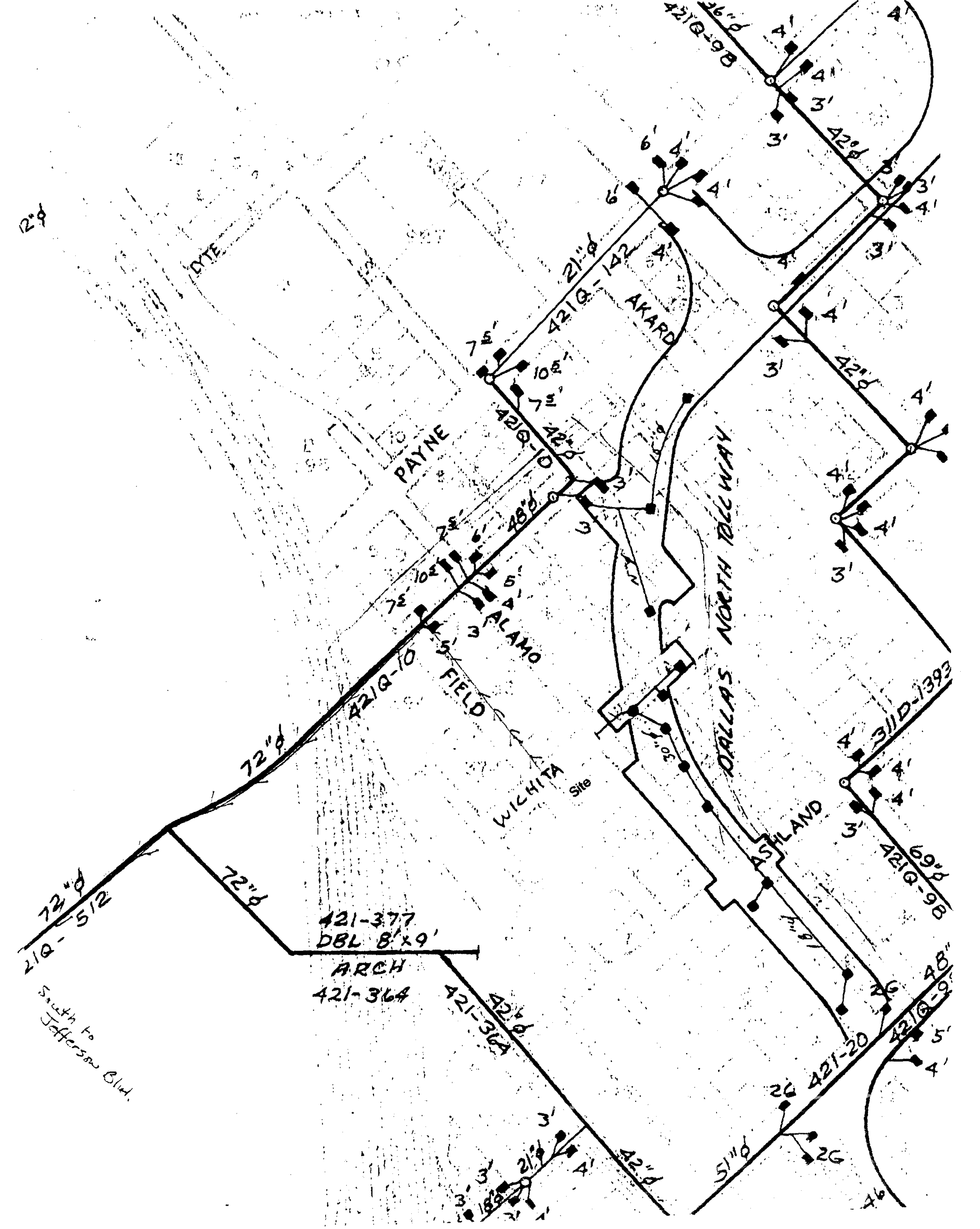
PHONE: 220-0318 FAX: 855-1422

THIS FAX IS BEING SENT BY:

NAME: LLOYD DENMAN

PHONE: 948-4684 FAX: 948-4657

COMMENTS: The inlets at Wichita and Field appear to discharge to a ditch which then flows to the Able Pump Station located at the Jefferson Blvd. Viaduct. From there it is pumped to the Trinity River. I am including a diagram of our storm drains in the area. Please call if you have questions.



421Q-98
36"φ
42"φ
21"φ
421Q-142
AKARD
PAYNE
421Q-10
42"φ
48"φ
ALAMO
FIELD
WICHITA
Site
DALLAS NORTH TOLLWAY
ASHLAND
311D-1393
69"φ
421Q-98
72"φ
421Q-10
72"φ
21Q-512
72"φ
421-377
DBL 8'x9'
ARCH
421-364
42"φ
421-364
421-20
421Q-9
48"
51"φ
42"φ
12"φ
South to Jefferson Blvd.

TARGET SHEET

SITE NAME: CONSOLIDATED CASTING CORPORATION

CERCLIS I.D.: TXD980626071

TITLE OF DOC.: PRELIMINARY ASSESSMENT FOR CONSOLIDATED CASTING CORPORATION

DATE OF DOC.: 09/27/1995

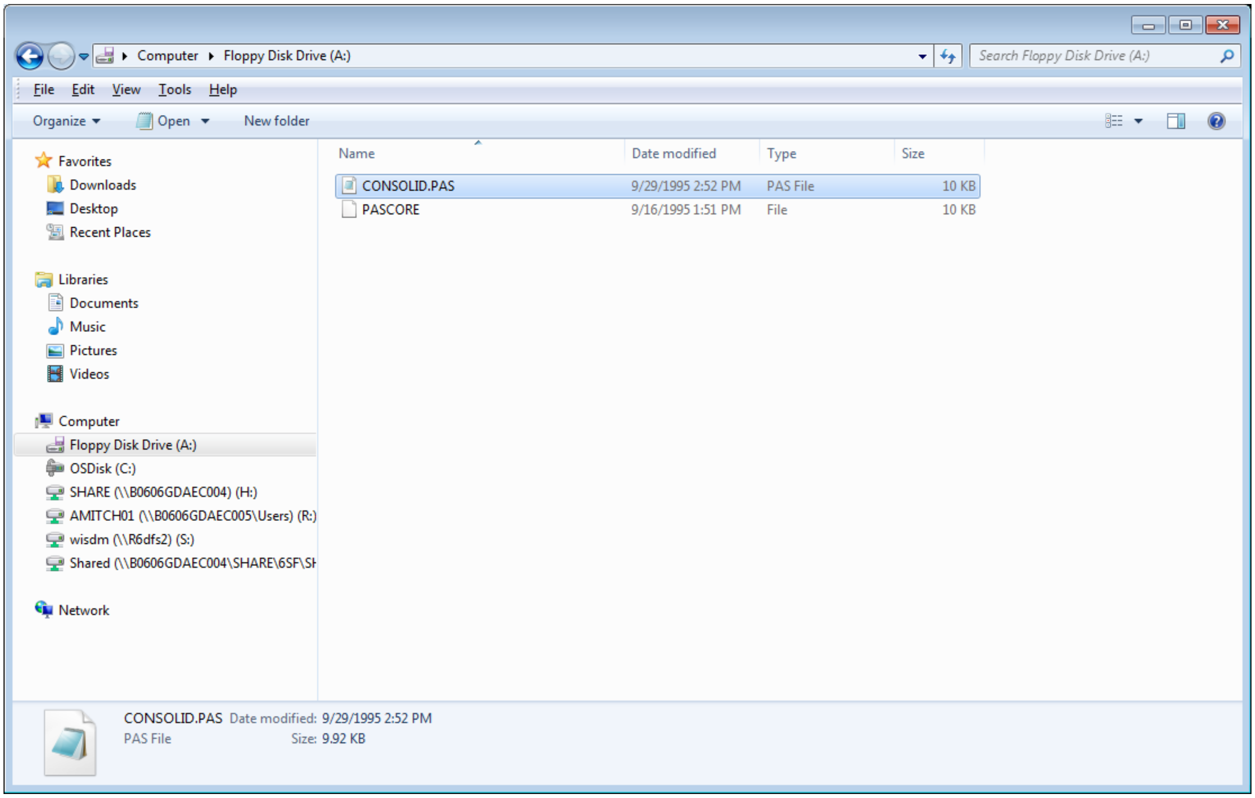
NO. OF PGS. THIS TARGET SHEET REPLACES: UNKNOWN

SDMS #: 9490344

CONFIDENTIAL ?		**MISSING PAGES ?**	
ALTERN. MEDIA ?	X	**CROSS REFERENCE ?**	

LAB DOCUMENT ?		**LAB NAME:**	
ASC./BOX #:			
CASE #:		**SDG #:**	

COMMENTS : RECEIVED FLOPPY DISK WITH FILES OF AN UNKNOWN OR UNRECOGNIZED FORMAT. CONTACT SUPERFUND RECORD CENTER TO OBTAIN DISKETTE.



Computer ▸ Floppy Disk Drive (A:)
Search Floppy Disk Drive (A:)
File Edit View Tools Help
Organize Open New folder
Favorites
Downloads
Desktop
Recent Places
Libraries
Documents
Music
Pictures
Videos
Computer
Floppy Disk Drive (A:)
OSDisk (C:)
SHARE (\\B0606GDAEC004) (H:)
AMITCH01 (\\B0606GDAEC005\Users) (R:)
wisdm (\\R6dfs2) (S:)
Shared (\\B0606GDAEC004\SHARE\6SF\SH
Network
Name Date modified Type Size
CONSOLID.PAS 9/29/1995 2:52 PM PAS File 10 KB
PASCORE 9/16/1995 1:51 PM File 10 KB
CONSOLID.PAS Date modified: 9/29/1995 2:52 PM
PAS File Size: 9.92 KB

REFERENCE 20

Consolidated Casting Corp. Site
CERCLIS #TXD980626071
2425 Caroline St.
Dallas, Dallas County, Texas

Ref. 20 A

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DALLAS QUADRANGLE
TEXAS-DALLAS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 CARROLLTON 15' QUADRANGLE

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Culture and drainage in part compiled from aerial photographs taken 1952 and 1956. Topography from City of Dallas surveys 1954 and by planetable surveys 1958

Polyconic projection. 10,000-meter grid ticks based on Texas coordinate system, north central zone. 1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue. 1927 North American Datum. To place on the predicted North American Datum 1983 move the projection lines 10 meters south and 26 meters east as shown by dashed corner ticks

Red tint indicates areas in which only landmark buildings are shown

Revisions shown in purple and woodland compiled from aerial photographs taken 1978 and other sources. This information not field checked. Map edited 1981

UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

3296-331

ROAD CLASSIFICATION

Heavy-duty | Light-duty
Medium-duty | Unimproved dirt
Interstate Route | U.S. Route | State Route

DALLAS, TEX.
SE/4 CARROLLTON 15' QUADRANGLE
N3245—W9645/7.5

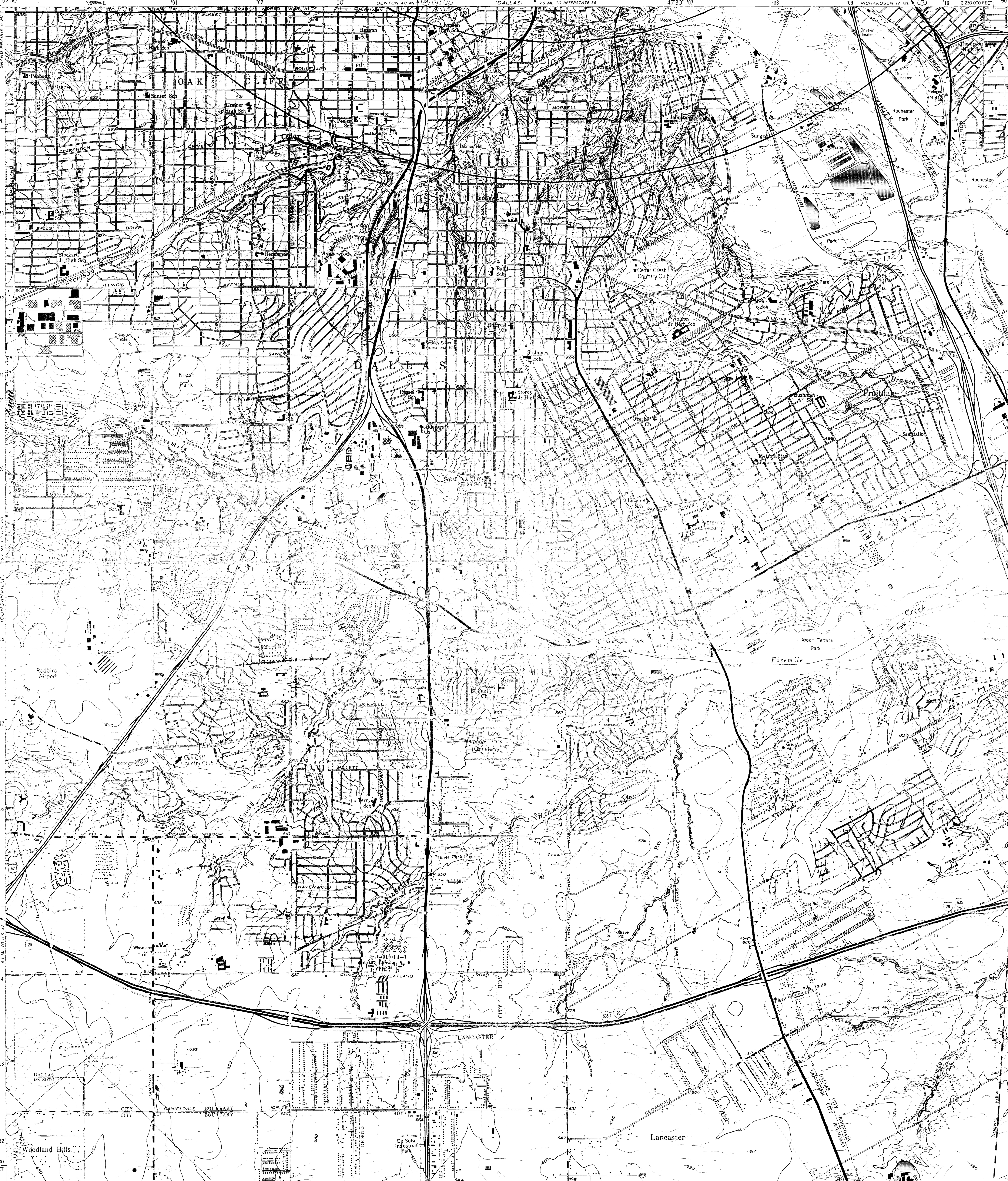
1958
PHOTOREVISED 1981
DMA 6649 IV SE–SERIES V882

Consolidated Casting Corp. Site
CERCLIS #TXD980626071
2425 Caroline St.
Dallas, Dallas County, Texas

Ref. 20 B

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

OAK CLIFF QUADRANGLE
TEXAS-DALLAS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Culture and drainage in part compiled from aerial photographs taken 1952 and 1956. Topography from City of Dallas surveys 1954 and by planetable surveys 1958

Polyconic projection. 10,000-foot grid ticks based on Texas coordinate system, north central zone. 1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue. 1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 11 meters south and 26 meters east as shown by dashed corner ticks

Red tint indicates areas in which only landmark buildings are shown

There may be private inholdings within the boundaries of the National or State reservations shown on this map

UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Revisions shown in purple and woodland compiled from aerial photographs taken 1979 and other sources. This information not field checked. Map edited 1981

Purple tint indicates extension of urban areas

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

3296-324

ROAD CLASSIFICATION

Primary highway, all weather, hard surface
Light-duty road, all weather improved surface
Secondary highway, all weather, hard surface
Unimproved road, fair or dry weather
Interstate Route U. S. Route State Route

OAK CLIFF, TEX.
N3237.5-W9645/7.5

1958
PHOTOREVISED 1981
DMA 6649 III NE-SERIES V882

Consolidated Casting Corp. Site
CERCLIS #TXD980626071
2425 Caroline St.
Dallas, Dallas County, Texas

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Ref. 20 C

HUTCHINS QUADRANGLE
TEXAS–DALLAS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

SCALE 1:24000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1973 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

Produced by the United States Geological Survey
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1952 and 1956
Topography from City of Dallas surveys 1954 and by plane-table surveys 1958
North American Datum of 1927 (NAD 27). Projection and 10,000-foot grid ticks: Texas Coordinate System, north central zone (Lambert Conformal Conic). 1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue
The difference between NAD 27 and North American Datum of 1983 (NAD 83) for 7.5 minute intersections is given in USGS Bulletin 1875. The NAD 83 is shown by dashed corner ticks
Red tint indicates areas in which only landmark buildings are shown

Revisions shown in purple compiled from aerial photographs taken 1968 and 1973. This information not field checked
Purple tint indicates extension of urban areas

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION
3296-313

ROAD CLASSIFICATION
Heavy-duty — Light duty
Medium-duty — Unimproved dirt
Interstate Route — U. S. Route — State Route

HUTCHINS, TEX.
32096-F6-TF-024
1958
PHOTOREVISED 1968 AND 1973
DMA 6649 II NW–SERIES V882

Ref. 20 D

Consolidated Casting Corp. Site
CERCLIS #TXD980626071
2425 Caroline St.
Dallas, Dallas County, Texas

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WHITE ROCK LAKE QUADRANGLE
TEXAS–DALLAS CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 GARLAND 15' QUADRANGLE

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Culture and drainage in part compiled from aerial photographs taken 1952 and 1956. Topography from city of Dallas surveys 1954 and by planetable surveys 1958

Polyconic projection. 1927 North American datum
10,000-foot grid based on Texas coordinate system, north central zone
1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue

Red tint indicates areas in which only landmark buildings are shown

Revisions shown in purple compiled from aerial photographs taken 1968 and 1973. This information not field checked

Purple tint indicates extension of urban areas

UTM GRID AND 1973 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route — U. S. Route — State Route

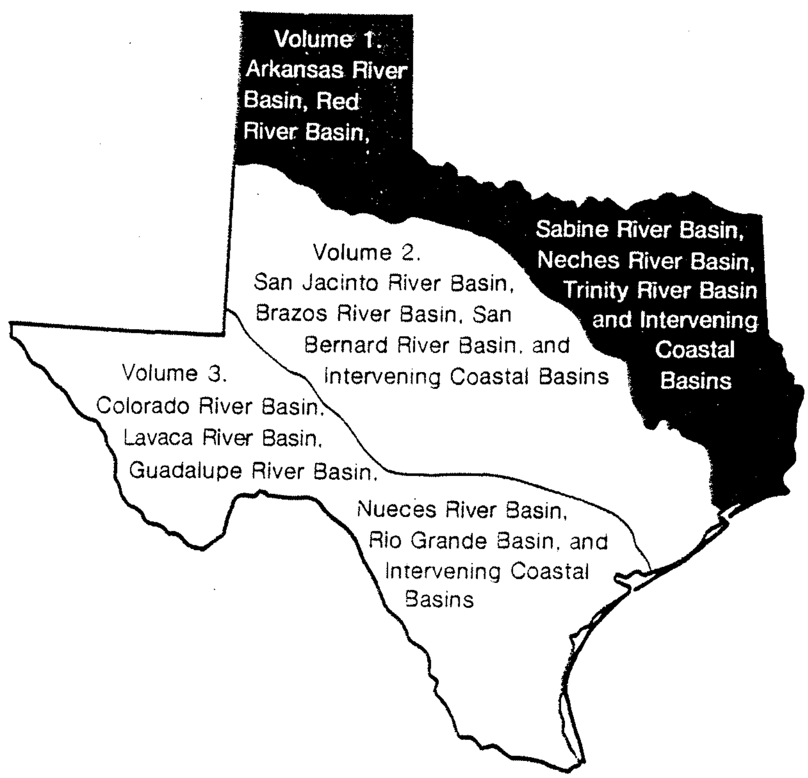
WHITE ROCK LAKE, TEX.
SW/4 GARLAND 15' QUADRANGLE
N3245—W9637.5/7.5

1958
PHOTOREVISED 1968 AND 1973
AMS 6649 I SW–SERIES V882

REFERENCE 21

Water Resources Data
Texas
Water Year 1988

Volume 1. Arkansas River Basin, Red River Basin, Sabir
River Basin, Neches River Basin, Trinity Rive
Basin and Intervening Coastal Basins



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-88-1
Prepared in cooperation with the State of Texas
and with other agencies

08057055 TRINITY RIVER AT CEDAR CREST BOULEVARD, DALLAS, TX

LOCATION.--Lat 32°45'04", long 96°47'07", Dallas County, Hydrologic Unit 12030105, on right bank at abandoned bridge abutment, 0.2 mi upstream from Cedar Crest Blvd. bridge, 1.8 mi southeast of Dallas City Hall, 2.1 mi downstream from Coombs Creek, and 2.7 mi downstream from Commerce Street Bridge (station 08057000).

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1984 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1984 to current year.
pH: February 1984 to current year.
WATER TEMPERATURES: February 1984 to current year.
DISSOLVED OXYGEN: February 1984 to current year.

INSTRUMENTATION.--Beginning February 1984, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. Records of discharge are given for gaging station 08057000. No appreciable inflow between the two stations.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,030 micorsiemens Feb. 12, 1988; minimum, 93 microsiemens Oct. 20, 1984.
pH: Maximum, 8.6 units Oct. 20, 1984; minimum, 6.8 units on Sept. 6, 1988.
WATER TEMPERATURE: Maximum, 33.5°C Aug. 12, 1987; minimum, 7.5°C Jan. 19, Dec. 27, 1987, and Jan. 8, 10, 11, 1988.
DISSOLVED OXYGEN: Maximum, 13.3 mg/L Feb. 7, 19, 1988; minimum, 0.0 mg/L July 21, 1985.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,030 microsiemens Feb. 12; minimum, 223 microsiemens Apr. 17.
pH: Maximum, 8.5 units on Jan. 8; minimum, 6.8 units Sept. 6.
WATER TEMPERATURE: Maximum, 32.5°C Aug. 7, 8; minimum, 7.5°C Dec. 27; Jan. 8, 10, 11.
DISSOLVED OXYGEN: Maximum, 13.3 mg/L Feb. 7, 19; minimum, 2.7 mg/L July 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
NOV										
13...	0705	390	784	7.90	16.0	7.7	78	3.0	160	13
FEB										
10...	1545	404	880	7.60	13.0	12.2	117	15	180	2
APR										
12...	1345	656	830	7.70	19.0	8.2	90	2.4	170	11
MAY										
20...	1730	661	--	--	--	--	--	--	--	--
20...	1930	1190	--	--	--	--	--	--	--	--
20...	2130	1430	--	--	--	--	--	--	--	--
20...	2330	1720	--	--	--	--	--	--	--	--
21...	0130	1990	--	--	--	--	--	--	--	--
21...	0330	2180	--	--	--	--	--	--	--	--
21...	0530	2240	--	--	--	--	--	--	--	--
JUN										
09...	1435	707	793	7.80	28.0	7.1	92	1.9	170	34
JUL										
28...	1610	929	823	7.90	31.0	7.2	97	2.3	150	31
SEP										
12...	1430	597	835	7.80	28.5	7.8	320	2.0	140	7

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV									
13...	54	7.3	88	3	12	152	90	82	1.0
FEB									
10...	59	7.3	100	3	12	176	100	82	1.0
APR									
12...	57	7.6	98	3	11	163	110	85	1.0
MAY									
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
JUN									
09...	59	6.6	87	3	10	141	100	79	0.90
JUL									
28...	49	7.2	100	4	9.0	121	90	87	1.1
SEP									
12...	46	7.0	110	4	11	137	86	95	1.0

REFERENCE 22

The State of Texas Water Quality Inventory

11th Edition

Pursuant to
SECTION 305(b)
FEDERAL CLEAN WATER ACT

LP 92-16
Texas Water Commission
August 1992

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LIST OF TABLES

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LIST OF FIGURES

Segment 0805 of the Trinity River Basin

NAME: Upper Trinity River

DESCRIPTION: from a point immediately upstream of the confluence of the Cedar Creek Reservoir discharge canal in Henderson/Navarro County to a point immediately upstream of the confluence of Elm Fork Trinity River in Dallas County

SEGMENT CLASSIFICATION: Water Quality Limited

LENGTH: 100 miles (161 kilometers)

DESIGNATED WATER USES: Contact Recreation
High Quality Aquatic Habitat

MONITORING STATIONS: 0805.0050, 0805.0100, 0805.0200, 0805.0230, 0805.0300, 0805.0400

INTENSIVE SURVEYS:

29 Apr 1974	Q,F,C,S,B	IMS-57	(Bohmfalk: Jul 1977)
16 Jul 1974	Q,F,C,S,B,I	IMS-57	(Bohmfalk: Jul 1977)
13 Sep 1982	Q,X,D,F,C,B	IS-53	(Davis: Jun 1983)
25 Oct 1982	Q,X,D,R,F,C,B	IS-53	(Davis: Jun 1983)
11 Jul 1983	Q,X,D,F,C,B	IS-67	(Davis: Sep 1984)
01 Jan 1970 to 31 Dec 1985	F,C	LP-87-02	(Davis: 1987)
07 Oct 1985	S,F,Q	LP-88-06	(Davis: Jul 1988)
04 Apr 1986	F,C,D,Q,W	LP-88-06	(Davis: Jul 1988)
06 Aug 1986	F,C,D,Q,W	LP-88-06	(Davis: Jul 1988)
05 May 1987	F,C,D,Q,W	LP-90-03	(Davis: Feb 1990)
27 Aug 1987	F,C,D,Q	LP-91-12	(Davis: Sep 1991)
01 Apr 1987 to 31 Dec 1988	I,N	LP-91-03	(Davis: Jan 1991)
01 Apr 1988 to 31 Oct 1988	S	LP-90-03	(Davis: Feb 1990)

PERMITTED FACILITIES (FINAL):

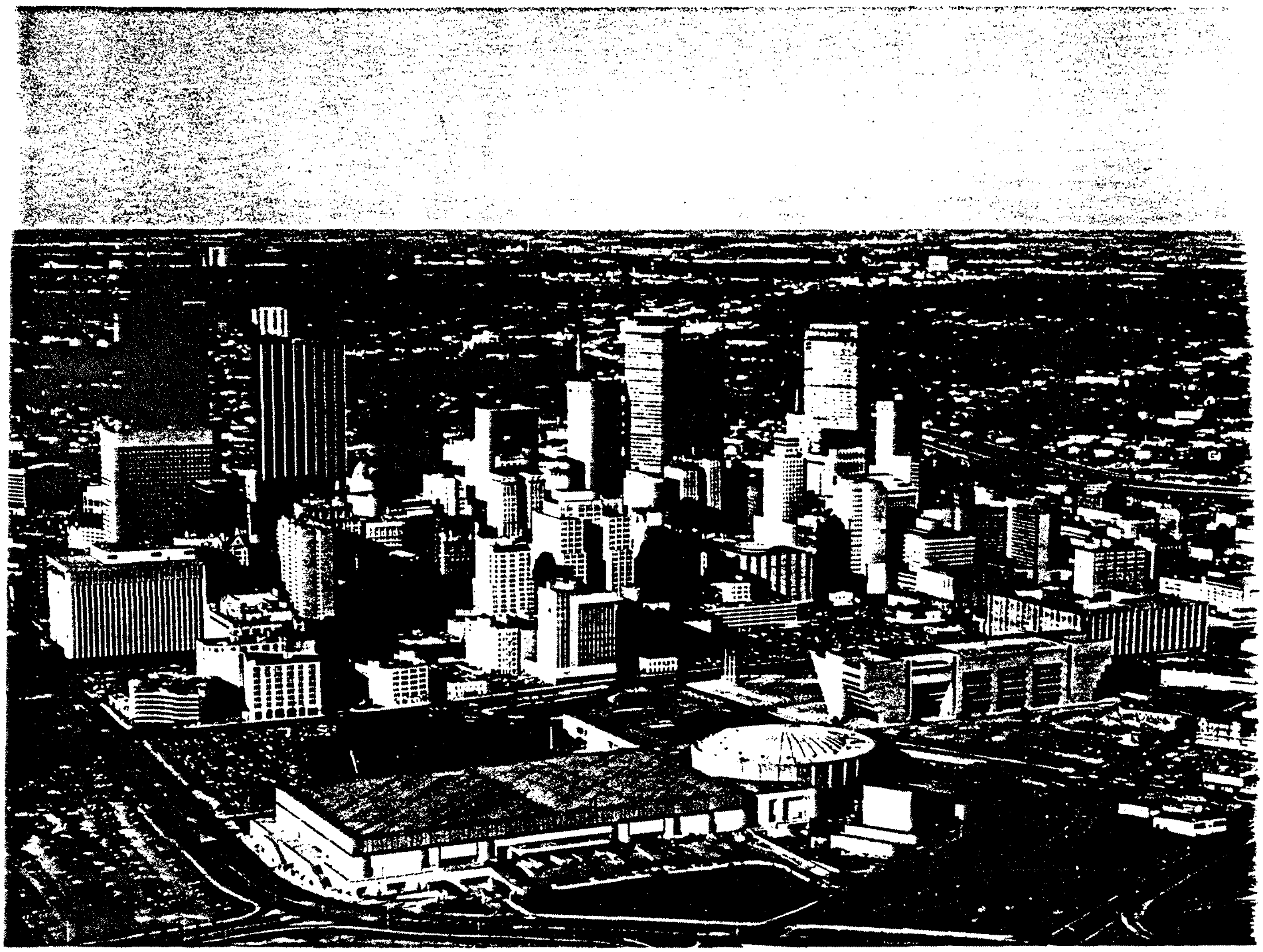
Domestic	8 outfalls	263.95 MGD
Industrial	12 outfalls	21.64 MGD
Total	20 outfalls	285.59 MGD

SEGMENT SUMMARY:

The Texas Department of Health has established a fishing closure in a portion of this segment (Elm Fork of Trinity River to IH 20 downstream of the City of Dallas) due to chlordane contamination in fish tissue. Also, cadmium and lead levels above the TWC water quality standards have been detected in water samples. Dissolved oxygen levels indicate water quality is sufficient to meet the high aquatic life use assigned the segment. Elevated fecal coliform densities prevent attainment of the contact recreational use. Average phosphorus and inorganic nitrogen levels are elevated. Stream flow in the segment is dominated by treated domestic wastewater discharged throughout the Fort Worth-Dallas Metropolitan area. Implementation of advanced waste treatment levels and dechlorination of effluents at the major dischargers to the segment have resulted in improved water quality conditions. Reflective of these conditions, in 1991 standard revisions, Segment 0805, which was previously designated for limited aquatic life use, was redefined and divided into two new segments (Segments 0805 and 0841). Segment 0841 the upstream segment (Village Creek to Elm Fork Trinity River) was designated for intermediate aquatic life use, and Segment 0805, the downstream segment (Elm Fork Trinity River to Cedar Creek Reservoir discharge canal) was designated for high aquatic life use.

REFERENCE 23

United States Department of Agriculture
Soil Conservation Service
in cooperation with
Texas Agricultural Experiment Station



soil survey of

Dallas County, Texas

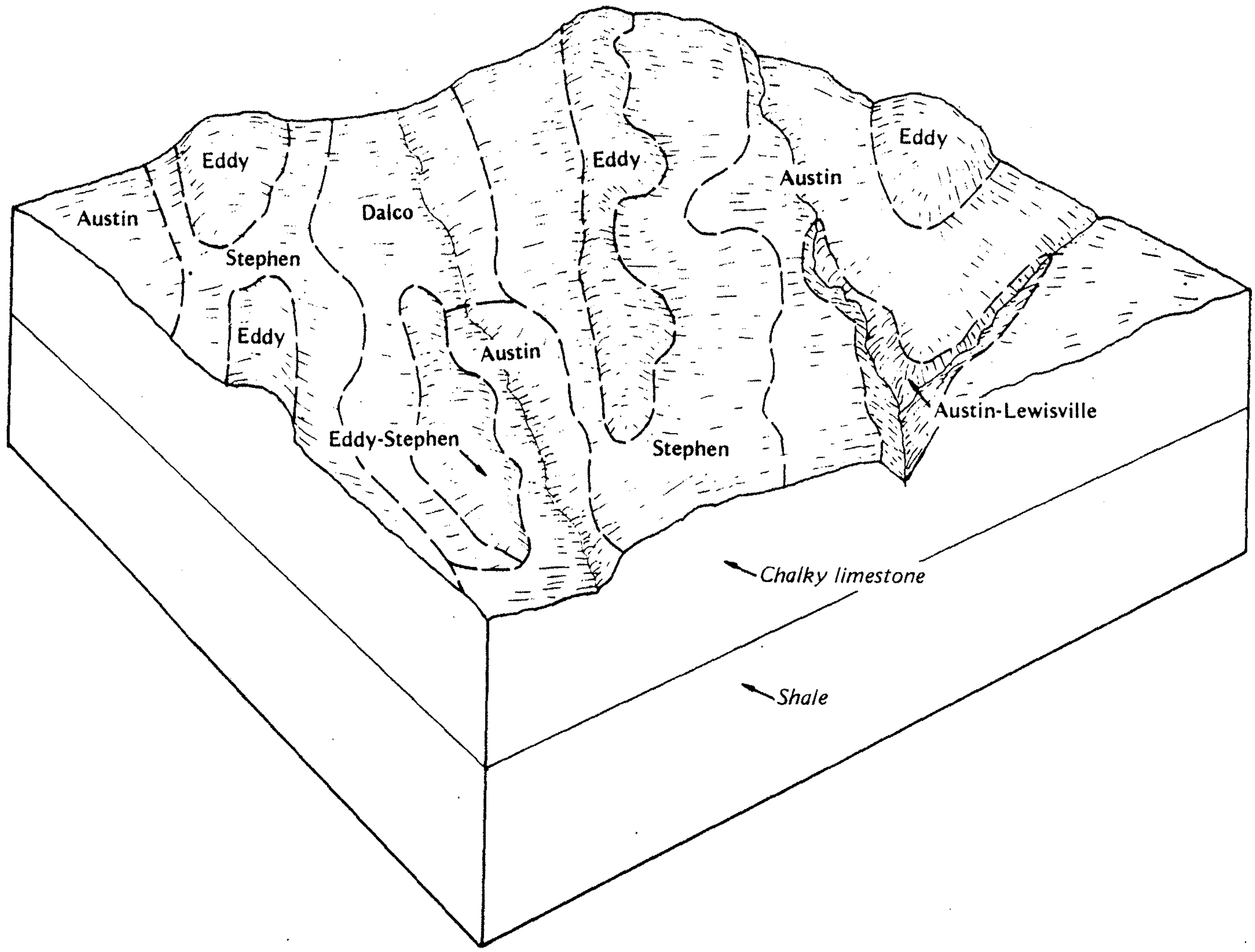


Figure 1.—Typical pattern of soils and parent material in the Eddy-Stephen-Austin map unit.

3. Trinity-Frio

Deep, nearly level, clayey soils; on flood plains

This map unit consists mainly of moderately alkaline, somewhat poorly drained and well drained soils that have slopes of 0 to 1 percent. This unit makes up about 19 percent of the county.

Trinity soils make up about 56 percent of the unit, and Frio soils make up 19 percent. Minor soils make up the rest.

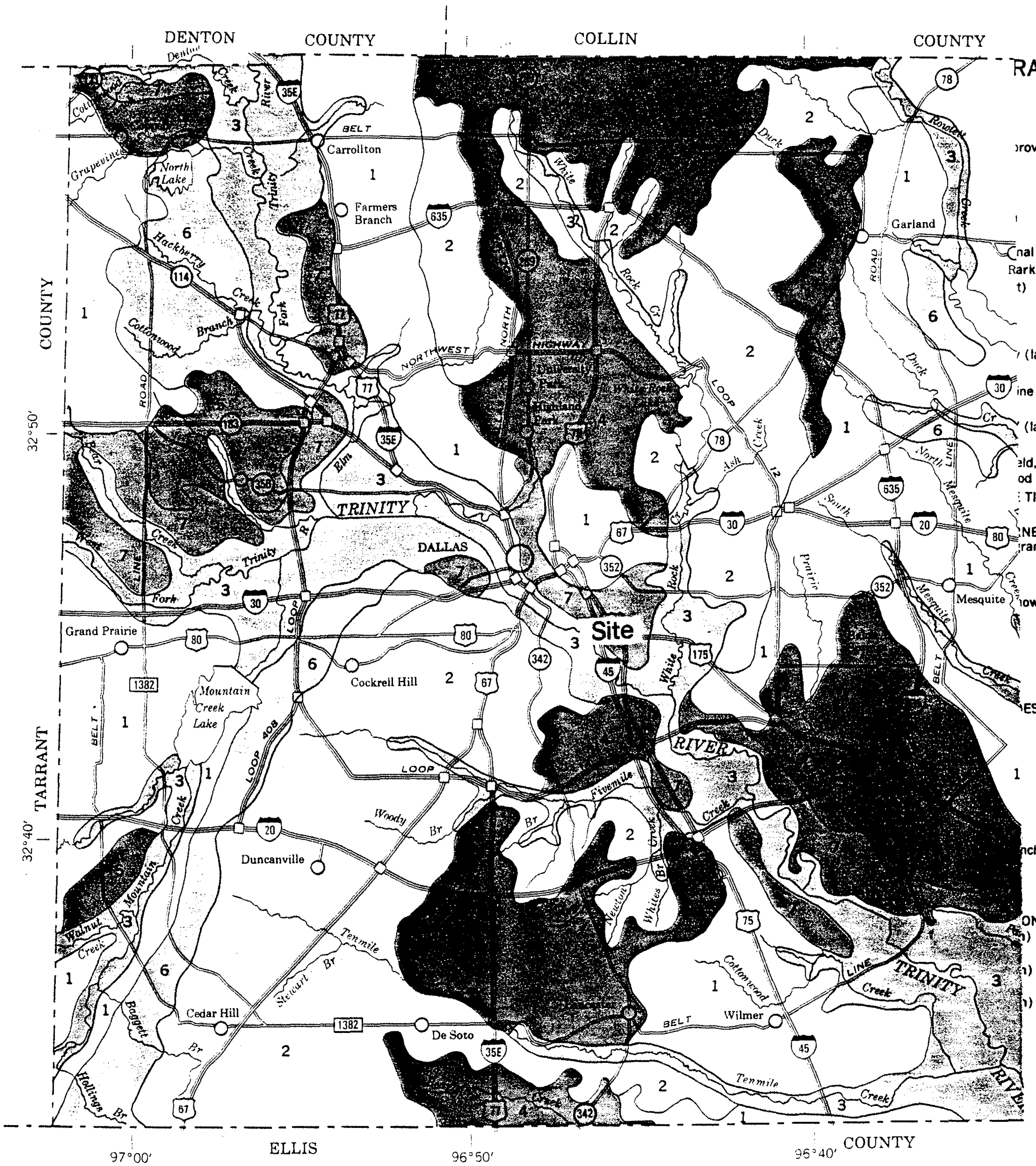
Trinity soils are somewhat poorly drained. They are on broad bottom lands along the Trinity River and its larger tributaries. Typically, these soils are dark gray to very dark gray clay from the surface to a depth of about 45 inches, and they are very dark grayish brown clay to a depth of 68 inches.

Frio soils are well drained. They are on broad bottom lands along the larger streams. Typically, the surface layer is very dark grayish brown to dark grayish brown silty clay about 53 inches thick. To a depth of 74 inches, the soil is brown silty clay loam.

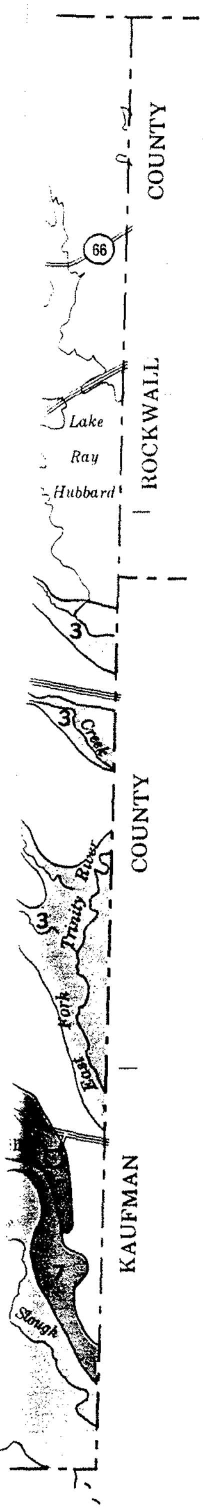
The minor soils in this map unit are Arents in areas where sand and gravel have been removed and Gowen, Ovan, and Seagoville soils on flood plains.

The soils in this map unit are used as cropland and pasture. The soils that are occasionally flooded have high potential for grain sorghum and cotton. Those that are frequently flooded are not suited to cultivation. These soils have high potential for improved bermudagrass. Many small areas are stripmined for sand and gravel.

The flood hazard, clayey texture, and very slow and moderately slow permeability of the soils and the very



Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on [illegible]



L E G E N D *

1 — HOUSTON BLACK-HEIDEN: Deep, nearly level to strongly sloping, clayey soils; on uplands

2 — EDDY-STEPHEN-AUSTIN: Very shallow, shallow, and moderately deep, gently sloping to moderately steep, loamy and clayey soils; on uplands

3 — TRINITY-FRIO: Deep, nearly level, clayey soils; on flood plains

4 — AUSTIN-HOUSTON BLACK: Moderately deep and deep, nearly level to sloping, clayey soils; on uplands

5 — WILSON-RADER-AXTELL: Deep, nearly level to gently sloping, loamy soils; on uplands

6 — FERRIS-HEIDEN: Deep, gently sloping to strongly sloping, clayey soils; on uplands

7 — SILAWA-SILSTID-BASTSIL: Deep, nearly level to sloping, loamy and sandy soils; on stream terraces

* In the headings, texture refers to the surface layer of the major soils.

Compiled 1979

N

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TEXAS AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

DALLAS COUNTY TEXAS

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km

(Joins sheet 24)

Joins sheet 38)

72—Trinity clay, occasionally flooded. This is a deep, somewhat poorly drained, nearly level soil on flood plains. The areas are long and range from 25 to as much as several thousand acres in size. This soil is subject to flooding during major storms unless levees are constructed to protect the areas.

Typically, the surface layer is moderately alkaline, very dark grayish brown clay 5 inches thick. To a depth of 31 inches, the soil is moderately alkaline, very dark gray clay. To a depth of 48 inches, it is moderately alkaline, black clay. Below that, to a depth of 68 inches, the soil is moderately alkaline, black clay that has brownish mottles.

Permeability is very slow, and the available water capacity is high. Runoff is very slow, and the hazard of erosion is slight.

Included in mapping are small areas of Ovan and Seagoville soils and small sloughlike areas of Trinity soils that are frequently flooded. The included soils make up less than 20 percent of any one mapped area.

The Trinity soil is used mainly as cropland, for which it has high potential. If the soil is properly managed, the yield of the crops commonly grown in the county is good. Leaving crop residue on or near the surface helps to maintain the tilth and productivity of the soil. In places, drainage outlets are needed. This soil has high potential for use as pasture. It is well suited to improved bermudagrass.

This soil has very low potential for urban uses. The hazard of flooding and the wetness, corrosivity, and very high shrink-swell potential of the soil are limitations. In addition, the walls of cuts and excavations tend to cave in or slough. The hazard of flooding and clayey texture and wetness of the soil are the main limitations to recreation uses.

This soil is in capability subclass IIw and in Clayey Bottomland range site.

73—Trinity clay, frequently flooded. This is a deep, nearly level, somewhat poorly drained soil on flood plains. The areas are long and narrow and range from 30 to as much as several thousand acres. This soil is flooded two or three times in most years. The floodwater is shallow to moderately deep.

Typically, the surface layer is moderately alkaline, dark gray clay 7 inches thick. To a depth of 20 inches, the soil is moderately alkaline, dark grayish brown clay. To a depth of 45 inches, it is moderately alkaline, very dark gray clay. Below that, to a depth of 68 inches, the soil is moderately alkaline, dark grayish brown clay.

Permeability is very slow, and the available water capacity is high. Runoff is slow, and the hazard of erosion is slight.

Included in mapping are small areas of Ovan and Seagoville soils and island-like areas of Trinity soils that are occasionally flooded. The included soils make up less than 20 percent of any one mapped area.

The Trinity soil is used mainly as pasture, for which it has high potential. It is well suited to improved bermudagrass. This soil is not used for crops because of the frequent flooding.

This soil has very low potential for urban uses and low potential for recreation uses. The frequent flooding and the wetness, corrosivity, very high shrink-swell potential, and clayey texture of the soil are limitations to these uses. In addition, the walls of cuts and excavations tend to cave in or slough.

This soil is in capability subclass Vw and in the Clayey Bottomland range site.

74—Trinity-Urban land complex. This complex is made up of deep, nearly level, somewhat poorly drained soils and areas of Urban land on flood plains. The areas generally are long and narrow and range from 40 to as much as several hundred acres.

The Trinity soil makes up about 60 percent of this complex, and Urban land, which consists of areas covered with pavement and buildings, makes up 20 percent. Minor soils make up the rest. In some areas, fill material consisting of soil, rock, broken pavement, and trash has been stacked 2 to 4 feet deep on the surface. In some areas, clayey material, accumulated during the straightening of some stream channels, has been spread 1 to 3 feet deep on the flood plains. The Trinity soil and Urban land are so intermingled that it was not practical to separate them in mapping at the scale used.

Typically, the surface layer of the Trinity soil is moderately alkaline, very dark gray clay 30 inches thick. To a depth of 48 inches, the soil is moderately alkaline, black clay. Below that, to a depth of 80 inches, it is moderately alkaline, dark grayish brown clay.

Permeability is very slow, and the available water capacity is high. Runoff is very slow, and the hazard of erosion is slight.

Included in mapping are small areas of Frio, Gowen, and Ovan soils. The included soils make up less than 20 percent of any one mapped area.

The soils in this complex have very low potential for urban uses, mainly because of the hazard of flooding. In most areas of Urban land, levees have been constructed to prevent damage by flooding. Other limitations to urban development are the very high shrink-swell potential, corrosivity, low strength, and wetness of the soil. The walls of cuts and excavations tend to cave in or slough. Wetness and the hazard of flooding are the main limitations to recreation uses.

This map unit was not assigned to a capability subclass or a range site.

75—Urban land. This map unit consists of extensively built up areas where 75 percent or more of the surface is covered with buildings and pavement. The soils in these areas have been altered or covered during urban development; therefore, it was not feasible to identify and separate them in mapping. The areas range from 40 to as much as several hundred acres in size. Residential areas make up about 10 percent of this complex.

Included in mapping are small areas where buildings and other structures cover 40 to 60 percent of the surface.

This map unit was not assigned to a capability subclass or a range site.

76—Ustorthents, undulating. This map unit is made up of areas where loamy and sandy soil material has been removed. In these areas, the surface is 2 to 6 feet lower than in the surrounding areas. The slopes are nearly level to undulating. The areas are irregular in shape and range from 15 to 50 acres in size.

The soil material in this unit is dominantly loamy. There are a few mounds of sand and a few low areas of clayey material. The soil material varies widely in color. In a few areas, there are small, deep pits that are partly filled with water.

The areas of this unit mainly are idle and are covered with weeds and grasses. A few areas are used as building sites.

This map unit was not assigned to a capability subclass or a range site.

77—Vertel clay, 5 to 12 percent slopes. This is a moderately deep, sloping and strongly sloping, well drained soil on uplands. The areas are long and narrow and range from 20 to as much as several hundred acres.

Typically, the surface layer is moderately alkaline, olive clay 14 inches thick. To a depth of 24 inches, the soil is moderately alkaline, olive gray clay. The layer below that, to a depth of 60 inches, consists of medium acid, dark gray weathered shale and clay that have olive and dark yellowish brown mottles.

Permeability is very slow, and the available water capacity is medium. Runoff is rapid, and the hazard of erosion is severe.

Included in mapping are small areas of Brackett, Eddy, Ferris, and Heiden soils. The included soils make up less than 15 percent of any one mapped area.

The Vertel soil is used mainly as rangeland, for which it has medium potential. The climax plant community consists of tall and short grasses. In a few areas, this soil is used as pasture. It is suited to improved bermudagrass. This soil is not suitable for crops because of the severe hazard of erosion.

This soil has low potential for urban uses. The unstable slopes, the hazard of erosion, and the very high shrink-swell potential, corrosivity, and low strength of the soil are limitations. In addition, the walls of excavations tend to cave in or slough. The slope and the clayey texture of the soil are the main limitations to recreation uses.

This soil is in capability subclass VIe and in the Eroded Blackland range site.

78—Wilson clay loam, 0 to 1 percent slopes. This is a deep, nearly level, somewhat poorly drained soil on uplands. The areas are irregular in shape and range from 10 to as much as several hundred acres in size.

Typically, the surface layer is mildly alkaline, dark grayish brown clay loam 5 inches thick. To a depth of 13 inches, the soil is mildly alkaline, dark gray clay. To a depth of 42 inches, it is neutral, dark gray clay. To a depth of 56 inches, the soil is mottled, very dark gray and olive brown, neutral clay, and to a depth of 64 inches, it is moderately alkaline, light olive clay.

Permeability is very slow, and the available water capacity is high. Runoff is very slow, and the hazard of erosion is slight.

Included in mapping are small areas of Burleson, Crockett, Houston Black, and Mabank soils. The included soils make up less than 10 percent of any mapped area.

The Wilson soil is used mainly as cropland, for which it has medium potential. Leaving crop residue on or near the surface of the soil helps to maintain tilth and productivity. In some areas, this soil is used as pasture, for which it has medium potential. It is well suited to improved bermudagrass.

This soil has low potential for urban uses. The high shrink-swell potential, corrosivity, and low strength of the soil are limitations, but they can be overcome through good design and careful installation. Wetness also is a limitation to urban uses, and it is more difficult to overcome. Wetness and the very slow permeability of the soil are the main limitations to recreation uses.

This soil is in capability subclass IIIw and in the Claypan Prairie range site.

79—Wilson clay loam, 1 to 3 percent slopes. This is a deep, gently undulating, somewhat poorly drained soil on uplands. The areas are oblong and range from 10 to 100 acres.

Typically, the surface layer is mildly alkaline, dark grayish brown clay loam 4 inches thick. To a depth of 11 inches, the soil is mildly alkaline, dark gray clay. To a depth of 42 inches, it is neutral, dark gray clay. Below that, to a depth of 56 inches, the soil is mottled, dark gray and olive brown, neutral clay, and to a depth of 64 inches, it is moderately alkaline, light olive brown clay.

Permeability is very slow, and the available water capacity is high. Runoff is medium, and the hazard of erosion is moderate.

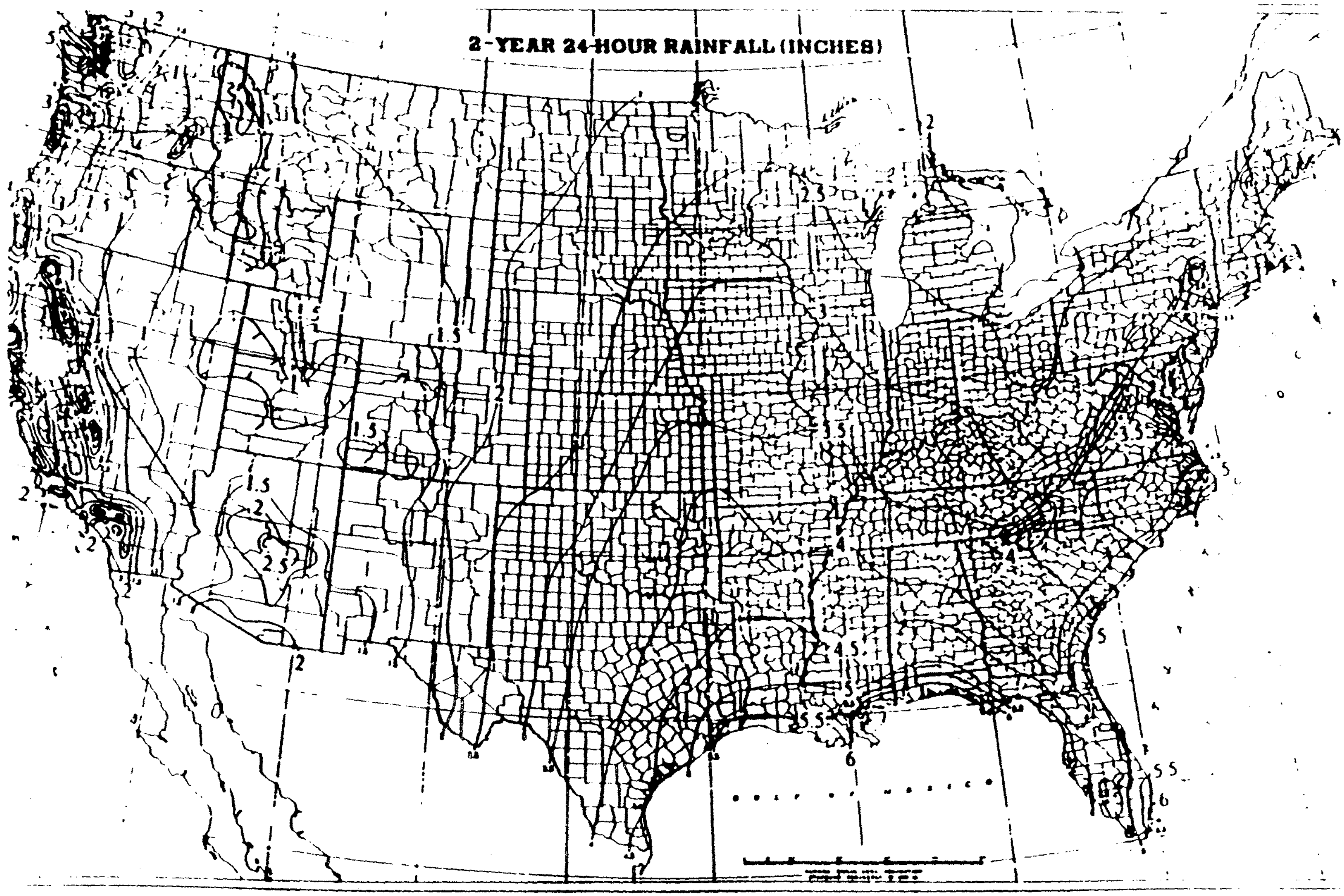
Included in mapping are small areas of Burleson, Crockett, Houston Black, and Mabank soils. The included soils make up less than 10 percent of any mapped area.

The Wilson soil is used mainly as pasture, for which it has medium potential. It is suited to improved bermudagrass. In a few areas, this soil is used as cropland, for which it has low potential. The hazard of erosion and the very slow permeability and low fertility of the soil are the main limitations to crops. Leaving crop residue on the surface or working it into the surface layer helps to maintain the tilth and productivity of this soil. Terraces and grassed waterways can help to control runoff.

This soil has low potential for urban uses. The hazard of erosion and the high shrink-swell potential, corrosivity,

REFERENCE 24

Herschfield, D.M., 1961, Rainfall Frequency Atlas of the United States. U.S. Weather Bureau Technical Paper No. 40.



2-YEAR 24-HOUR RAINFALL (INCHES)

REFERENCE 25

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

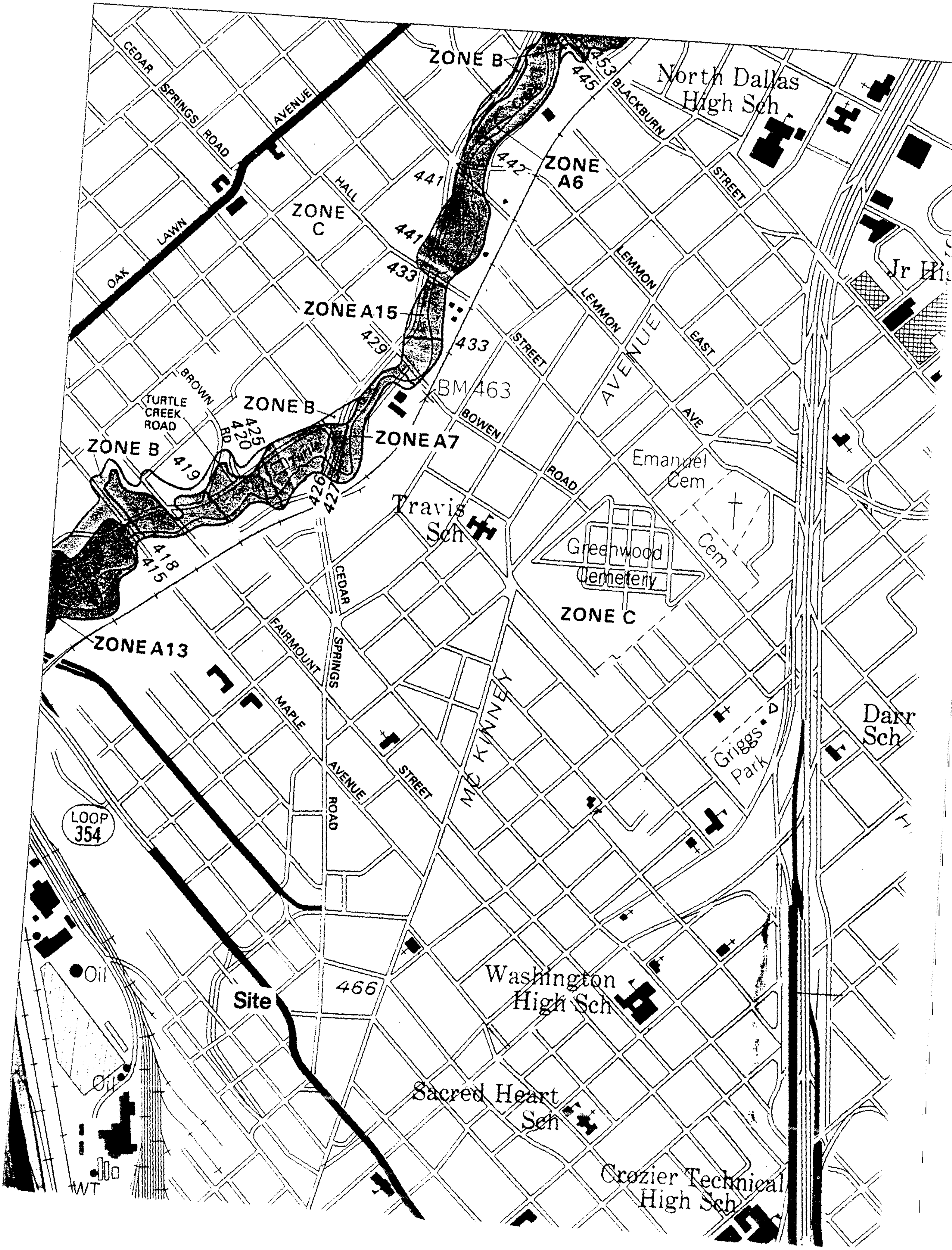
CITY OF
DALLAS, TEXAS
DALLAS, DENTON, COLLIN,
ROCKWALL AND KAUFMAN
COUNTIES

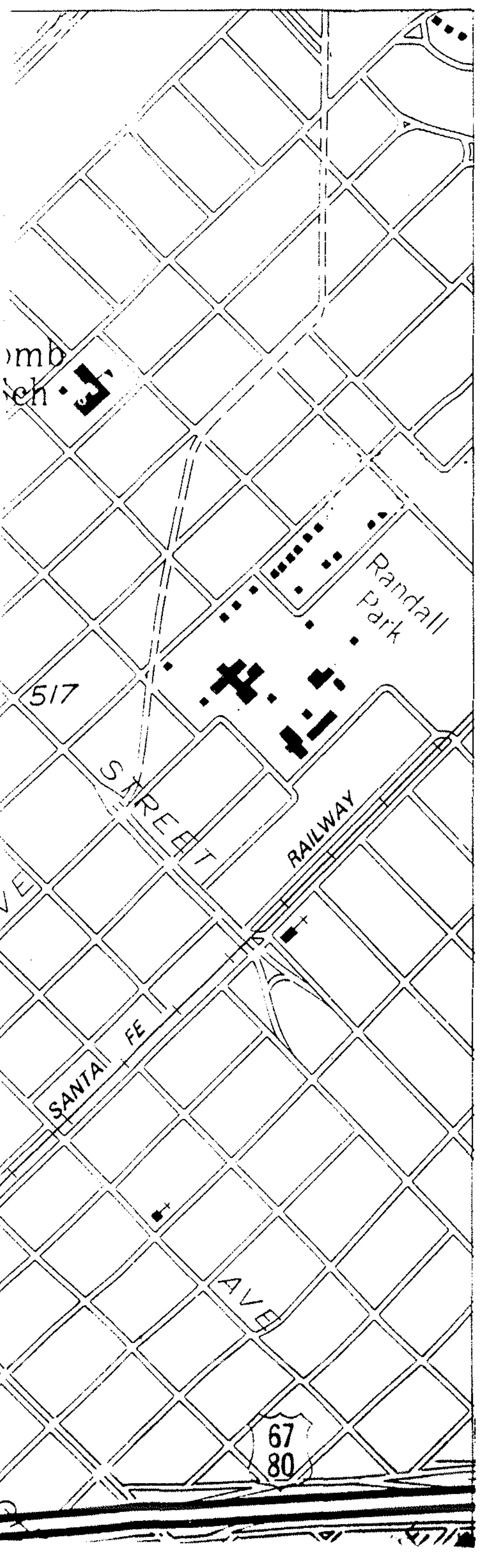
PANEL 135 OF 235
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
480171 0135 D

MAP REVISED:
JULY 2, 1991

Federal Emergency Management Agency


ZONE B
North Dallas
High Sch
CEDAR
SPRINGS
ROAD
AVENUE
BLACKBURN
ZONE
A6
STREET
OAK
LAWN
HALL
ZONE
C
LEMMON
LEMMON
AVENUE
EAST
AVE
ZONE A15
STREET
BM463
Jr Hi
BROWN
TURTLE
CREEK
ROAD
RD
ZONE B
ZONE B
ZONE A7
BOWEN
ROAD
Emanuel
Cem
Travis
Sch
Greenwood
Cemetery
Cem
ZONE C
ZONE A13
CEDAR
SPRINGS
ROAD
FAIRMOUNT
MAPLE
AVENUE
STREET
MC KINNEY
Griggs
Park
Darr
Sch
LOOP
354
Oil
Site
466
Washington
High Sch
Oil
Sacred Heart
Sch
Crozier Technical
High Sch
WT



KEY TO MAP

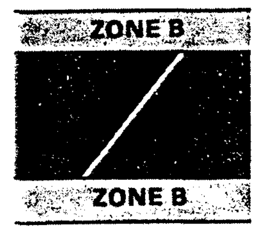
500-Year Flood Boundary

100-Year Flood Boundary

Zone Designations*

100-Year Flood Boundary

500-Year Flood Boundary



Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5
Undeveloped Coastal Barriers	

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for possible updated flood hazard information prior to use of this map for property purchase or construction purposes.

Coastal base flood elevations apply only landward of 0.0 NGVD, and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Areas of special flood hazard (100-year flood) include Zones A, A1-A30, AH, AO,

REFERENCE 26

RECORD OF COMMUNICATION

Reference 26

TYPE:	Phone Call	**DATE:**	04/27/95	**TIME:**	11:15 a.m.

TO: Leon Jackson, Dallas Water Utilities, (214) 670-0900.

FROM: Leticia Ayala, TAT, Ecology and Environment (214) 220-0318. JO for JA

SUBJECT: Water Supplies for the City of Dallas

SUMMARY OF COMMUNICATION:

Mr. Jackson stated that the downtown area obtains their water from the East Side Plant. This plant in turn obtains their water from Lake Ray Hubbard and Lake Tawakoni. Dallas utilizes surface water exclusively for drinking water supplies. Other lakes used for water are Lake Ray Roberts, Grapevine Lake, and Lake Richland Chambers.

REFERENCE 27

RECORD OF COMMUNICATION

TYPE: Phone Call DATE: 07/27/95 TIME: 2:50 p.m.

TO: Richard Browning, Trinity River Authority, Planning Dept. (817) 467-4343.

FROM: Lana Ocker, TAT, Ecology and Environment (214) 220-0318.

80

SUBJECT: Surface Water Intakes on the Trinity River

SUMMARY OF COMMUNICATION:

Mr. Browning stated that the only surface water intake or water right-of-way on the Trinity River between the Jefferson Blvd. viaduct and the Fin and Feather Club was north of Loop 12 on the west bank. Mr. Browning stated that this intake was not a permanent structure, but just some pumps that are used to fill ponds on a golf course and to irrigate the greens. Mr. Browning stated that there are no drinking water intakes within this distance. Mr. Browning also confirmed that Dallas uses surface water supplies from five area lakes for drinking water.

REFERENCE 28

Consolidated Casting Corp. Site
CERCLIS #TXD980626071
2425 Caroline St.
Dallas, Dallas County, Texas

Ref. 28

NATIONAL WETLANDS INVENTORY

UNITED STATES DEPARTMENT OF THE INTERIOR

DALLAS, TEX. 2025-10

DALLAS NE
DALLAS

DALLAS, TEX.

SCALE 1:24 000

1 acre — 10 acres — 20 acres
ACREAGE GUIDE

Other information including a narrative report concerning the wetland resources depicted on this document may be available. For information, contact:

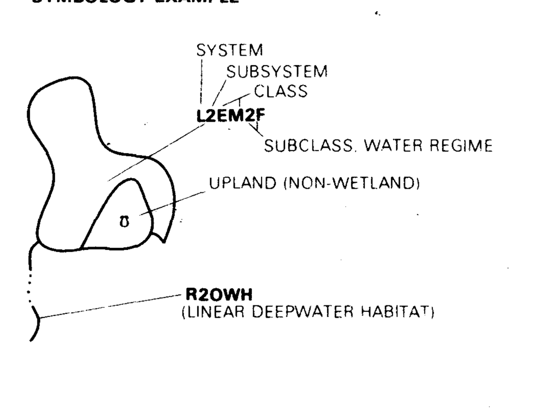
Regional Director (ARDE) Region II
U.S. Fish and Wildlife Service
P.O. Box 1306
Albuquerque, New Mexico 87103

SPECIAL NOTE

This document was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with **Classification of Wetlands and Deepwater Habitats of the United States** (FWS/OBS - 79/31 December 1979). The aerial photographs typically reflect conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of the aerial photographs. Thus, a detailed on the ground and historical analysis of a single site may result in a revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included on this document.

Federal, State and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, State or local government or to establish the geographical scope of the regulatory programs of government agencies. **Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, State or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.**

SYMBOLOGY EXAMPLE



ʊ — Primarily represents **upland** areas, but may include unclassified wetlands such as man-modified areas, non photo-identifiable areas and/or unintentional omissions.

NOTES TO THE USER

- Wetlands which have been field examined are indicated on the map by an asterisk (*).
- Additions or corrections to the wetlands information displayed on this map are solicited. Please forward such information to the address indicated.
- Subsystems, Classes, Subclasses, and Water Regimes in *Italics* were developed specifically for NATIONAL WETLANDS INVENTORY mapping.
- Some areas designated as R4SB, R4SBW, OR R4SBJ (INTERMITTENT STREAMS) may not meet the definition of wetland.
- This map uses the class Unconsolidated Shore (US). On earlier NWI maps that class was designated Beach/Bar (BB), or Flat (FL). Subclasses remain the same in both versions.

AERIAL PHOTOGRAPHY

DATE: 11 / / 82 DATE: / /
SCALE: 1:65 000 SCALE:
TYPE: CIR TYPE:

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Prepared by National Wetlands Inventory
1989

SYSTEM: M — MARINE

SUBSYSTEM: 1 — SUBTIDAL
- RB — ROCK BOTTOM: 1 Bedrock, 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
- AB — AQUATIC BED: 1 Algal, 3 Rooted Vascular, 5 *Unknown Submergent*
- RF — REEF: 1 Coral, 3 Worm
- OW — *OPEN WATER/Unknown Bottom*

SUBSYSTEM: 2 — INTERTIDAL
- AB — AQUATIC BED: 1 Algal, 3 Rooted Vascular, 5 *Unknown Submergent*
- RF — REEF: 1 Coral, 3 Worm
- RS — ROCKY SHORE: 1 Bedrock, 2 Rubble
- US — UNCONSOLIDATED SHORE: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic

SYSTEM: E — ESTUARINE

SUBSYSTEM: 1 — SUBTIDAL
- RB — ROCK BOTTOM: 1 Bedrock, 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
- AB — AQUATIC BED: 1 Algal, 3 Rooted Vascular, 4 Floating Vascular, 5 *Unknown Submergent*, 6 *Unknown Surface*
- RF — REEF: 2 Mollusc, 3 Worm
- OW — *OPEN WATER/Unknown Bottom*

SUBSYSTEM: 2 — INTERTIDAL
- AB — AQUATIC BED: 1 Algal, 3 Rooted Vascular, 4 Floating Vascular, 5 *Unknown Submergent*, 6 *Unknown Surface*
- RF — REEF: 2 Mollusc, 3 Worm
- SB — STREAMBED: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
- RS — ROCKY SHORE: 1 Bedrock, 2 Rubble
- US — UNCONSOLIDATED SHORE: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
- EM — EMERGENT: 1 Persistent, 2 Nonpersistent
- SS — SCRUB-SHRUB: 1 Broad-Leaved Deciduous, 2 Needle-Leaved Deciduous, 3 Broad-Leaved Evergreen, 4 Needle-Leaved Evergreen, 5 Dead, 6 *Deciduous*, 7 *Evergreen*
- FO — FORESTED: 1 Broad-Leaved Deciduous, 2 Needle-Leaved Deciduous, 3 Broad-Leaved Evergreen, 4 Needle-Leaved Evergreen, 5 Dead, 6 *Deciduous*, 7 *Evergreen*

SYSTEM: R — RIVERINE

SUBSYSTEM: 1 — TIDAL; 2 — LOWER PERENNIAL; 3 — UPPER PERENNIAL; 4 — INTERMITTENT; 5 — UNKNOWN PERENNIAL
- RB — ROCK: 1 Bedrock, 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
- *SB — STREAMBED: 1 Bedrock, 2 Rubble, 3 Cobble-Gravel, 4 Sand, 5 Mud, 6 Organic, 7 Vegetated
- AB — AQUATIC BED: 1 Algal, 2 Aquatic Moss, 3 Rooted Vascular, 4 Floating Vascular, 5 *Unknown Submergent*, 6 *Unknown Surface*
- RS — ROCKY SHORE: 1 Bedrock, 2 Rubble
- US — UNCONSOLIDATED SHORE: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic, 5 Vegetated
- **EM — EMERGENT: 2 Nonpersistent
- OW — *OPEN WATER/Unknown Bottom*

*STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM
**EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS. The remaining CLASSES are found in all SUBSYSTEMS

SYSTEM: L — LACUSTRINE

SUBSYSTEM: 1 — LIMNETIC
- RB — ROCK BOTTOM: 1 Bedrock, 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
- AB — AQUATIC BED: 1 Algal, 2 Aquatic Moss, 3 Rooted Vascular, 4 Floating Vascular, 5 *Unknown Submergent*, 6 *Unknown Surface*
- OW — *OPEN WATER/Unknown Bottom*

SUBSYSTEM: 2 — LITTORAL
- RB — ROCK BOTTOM: 1 Bedrock, 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
- AB — AQUATIC BED: 1 Algal, 2 Aquatic Moss, 3 Rooted Vascular, 4 Floating Vascular, 5 *Unknown Submergent*, 6 *Unknown Surface*
- RS — ROCKY SHORE: 1 Bedrock, 2 Rubble
- US — UNCONSOLIDATED SHORE: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic, 5 Vegetated
- EM — EMERGENT: 2 Nonpersistent
- OW — *OPEN WATER/Unknown Bottom*

SYSTEM: P — PALUSTRINE
- RB — ROCK BOTTOM: 1 Bedrock, 2 Rubble
- UB — UNCONSOLIDATED BOTTOM: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic
- AB — AQUATIC BED: 1 Algal, 2 Aquatic Moss, 3 Rooted Vascular, 4 Floating Vascular, 5 *Unknown Submergent*, 6 *Unknown Surface*
- US — UNCONSOLIDATED SHORE: 1 Cobble-Gravel, 2 Sand, 3 Mud, 4 Organic, 5 Vegetated
- ML — MOSS-LICHEN: 1 Moss, 2 Lichen
- EM — EMERGENT: 1 Persistent, 2 Nonpersistent
- SS — SCRUB-SHRUB: 1 Broad-Leaved Deciduous, 2 Needle-Leaved Deciduous, 3 Broad-Leaved Evergreen, 4 Needle-Leaved Evergreen, 5 Dead, 6 *Deciduous*, 7 *Evergreen*
- FO — FORESTED: 1 Broad-Leaved Deciduous, 2 Needle-Leaved Deciduous, 3 Broad-Leaved Evergreen, 4 Needle-Leaved Evergreen, 5 Dead, 6 *Deciduous*, 7 *Evergreen*
- OW — *OPEN WATER/Unknown Bottom*

MODIFIERS

In order to more adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME: Non-Tidal		WATER REGIME: Tidal	WATER CHEMISTRY: Coastal Halinity	WATER CHEMISTRY: Inland Salinity	WATER CHEMISTRY: pH Modifiers for all Fresh Water	SOIL	SPECIAL MODIFIERS	
A Temporarily Flooded	H Permanently Flooded	K *Artificially Flooded*	1 Hyperhaline	7 Hypersaline	a Acid	g Organic	b *Beaver*	h *Diked/Impounded*
B Saturated	J Intermittently Flooded	L Subtidal	2 Euhaline	8 Eusaline	t Circumneutral	n Mineral	d *Partially Drained/Ditched*	r Artificial Substrate
C Seasonally Flooded	K Artificially Flooded	M Irregularly Exposed	3 Mixohaline *(Brackish)*	9 Mixosaline	i Alkaline		f Farmed	s *Spoil*
D *Seasonally Flooded/Well Drained*	W Intermittently Flooded/Temporary	N Regularly Flooded	4 Polyhaline	0 Fresh				x Excavated
E *Seasonally Flooded/Saturated*	Y Saturated/Semipermanent/Seasonal	P Irregularly Flooded	5 Mesohaline					
F Semipermanently Flooded	Z Intermittently Exposed/Permanent	*S Temporary-Tidal	6 Oligohaline					
G Intermittently Exposed	U Unknown	*R Seasonal-Tidal	0 Fresh					
		*T Semipermanent-Tidal						
		*V Permanent-Tidal						
		U *Unknown*						

*These water regimes are only used in tidally influenced, freshwater systems.

REFERENCE 29

COVERAGE

STATE	COUNTY	STATE NAME	COUNTY NAME
48	113	Texas	Dallas Co

CENTER POINT AT STATE : 48 Texas
COUNTY : 113 Dallas Co

REGION OF THE COUNTRY

Zipcode found: 75250 at a distance of 0.4 Km

STATE	CITY NAME	FIPSCODE	LATITUDE	LONGITUDE
TX	DALLAS	48113	32.7767	96.8117

CENSUS DATA

Consolidated Casting Corporation
LATITUDE 32:46:30 LONGITUDE 96:48:30 1995 POPULATION

				SECTOR			
KM	0.00-.400	.400-.810	.810-1.60	1.60-3.20	3.20-4.80	4.80-6.40	TOTALS
S 1	1682	395	1062	24237	81921	100785	210082
RING TOTALS	1682	395	1062	24237	81921	100785	210082

4-12-95

STAR STATION

WBAN NUMBER	STATION NAME	LATITUDE	LONGITUDE	PERIOD OF RECORD	DISTANCE (km)
13960	DALLAS/LOVE TX	32.8500	96.8500	1967-1971	9.2
03927	FT WORTH/REGIONAL TX	32.9000	97.0333	1957-1971	25.2
13923	SHERMAN/PERRIN TX	33.7167	96.6667	1966-1976	105.4
13959	WACO TX	31.6167	97.2167	1969-1973	134.3
13972	TYLER/POUNDS TX	32.3667	95.4000	1950-1954	139.4
13966	WICHITA FALLS/MUNICIPAL ARPT	33.9667	98.4833	1985-1989	204.1
13945	FT SILL/POST OK	34.6500	98.4000	1966-1970	255.0

U.S. SOIL DATA

STATE : TEXAS

LATITUDE : 32:46:30 LONGITUDE : 96:48:30
THE STATION IS INSIDE H.U. 12030105

GROUND WATER ZONE : 10
RUNOFF SOIL TYPE : 2
EROSION : 1.1210E-03 CM/MONTH
DEPTH TO GROUND WATER BETWEEN : 3.0000E+03 AND 3.0000E+03
FIELD CAPACITY FOR TOP SOIL : 7.2000E-02
EFFECTIVE POROSITY BETWEEN : 2.0000E-02 AND 3.0000E-01
SEEPAGE TO GROUNDWATER BETWEEN : 4.6330E+03 AND 1.3900E+04 CM/MONTH
DISTANCE TO DRINKING WELL : 2.8000E+04 CM

U.S. CITY

STATE	PLACE NAME	FIPSCODE	LATITUDE	LONGITUDE
TX	DALLAS	48113	32.7937	96.8020

REFERENCE 30

September 28, 1995

Consolidated Casting Corporation

PAN#: ENTER PAN

##

OSCARS SUMMARY REPORT OF 4 MILE RADIUS AROUND -96 48 30,32 46 30

##

NOTE:
This data is in DRAFT format, and
may not be complete and/or accurate.

QUADS CONTAINING BCD SPECIES:	1
QUADS CONTAINING WETLANDS:	5
ACP SPECIES (COUNTY):	1
WILDLIFE/MANAGEMENT AREAS:	0
DAMS:	5
RCRA SITES:	8
FRP SITES:	2
REFINERIES:	0
NATIONAL PARKS:	0
USGS 7.5 MIN. QUADRANGLES:	5

##

END OF SUMMARY REPORT:

September 28, 1995

Consolidated Casting Corporation

PAN#: ENTER PAN

##

OSCARS SUMMARY REPORT OF 4 MILE RADIUS AROUND -96 48 30,32 46 30

##

NOTE:
This data is in DRAFT format, and
may not be complete and/or accurate.

==

BCD SPECIES (QUADS)

==

771

QUAD_NAME = White Rock Lake
SPECIES1 = TEXAS GARTER SNAKE
SPECIES2 =
SPECIES3 =
SPECIES4 =
SPECIES5 =
SPECIES6 =
SPECIES7 =
SPECIES8 =

==

WETLAND QUADS

==

Record	QUAD_NAME
4143	White Rock Lake
4145	Dallas
4148	Irving
4263	Hutchins
4265	Oak Cliff

==

AREA CONTINGINCY PLAN (ACP) SPECIES (COUNTY)

==

259

CNTY_NAME = Dallas
SPECIES1 = Arctic Peregrine Falcon
SPECIES2 = Black-capped Vireo
SPECIES3 = Piping Plover
SPECIES4 = Whooping Crane
SPECIES5 = NODATA
SPECIES6 = NODATA
SPECIES7 = NODATA

```
SPECIES8                    = NODATA

*******************************************************************

NO WILDLIFE/MANAGEMENT AREAS WERE FOUND !

*******************************************************************
*******************************************************************

NO WATER INTAKES WERE FOUND !

*******************************************************************
===================================================================

DAMS

===================================================================

DAMS: 5 LOCATED

*******************************************************************

NO NPL SITES WERE FOUND !

*******************************************************************
===================================================================

RCRA SITES

===================================================================
            57
NAME                        = NATIONAL CHROME PLATING CO
LATITUDE                    =       32.777
LONGITUDE                   =      -96.783
            58
NAME                        = ALLIED RADIATOR SERVICE
LATITUDE                    =       32.768
LONGITUDE                   =      -96.822
           215
NAME                        = DAL-CHROME COMPANY, INC.
LATITUDE                    =       32.743
LONGITUDE                   =      -96.783
           217
NAME                        = DIXIE METALS CO.
LATITUDE                    =       32.738
LONGITUDE                   =      -96.781
           221
NAME                        = MURMUR CORPORATION (SITE 1)
LATITUDE                    =       32.778
LONGITUDE                   =      -96.872
           222
NAME                        = MURMUR CORPORATION
LATITUDE                    =       32.776
LONGITUDE                   =      -96.875
           224
NAME                        = UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER - DALLAS
LATITUDE                    =       32.813
LONGITUDE                   =      -96.842
           247
NAME                        = DIXICO INCORPORATED
```

LATITUDE = 32.732
LONGITUDE = -96.838

==

FRP SITES

==

98

OWNER_NAME = OXY BASIC CHEMICALS GROUP
FAC_NAME = DALLAS SILCATE PLANT

237

OWNER_NAME = TU ELECTRIC
FAC_NAME = DALLAS STEAM ELECTRIC STATION

****

NO REFINERIES WERE FOUND !

****
****

NO NATIONAL PARKS WERE FOUND !

****
==

USGS 7.5 MIN. QUADRANGLE

==

Record	QUAD_NAME	USGS_QD_ID
4991	White Rock Lake	32096-G6
4993	Dallas	32096-G7
4997	Irving	32096-G8
5137	Hutchins	32096-F6
5139	Oak Cliff	32096-F7

END OF REPORT:

REFERENCE 31

Handout #8

SUPERFUND CHEMICAL DATA MATRIX

March 1993

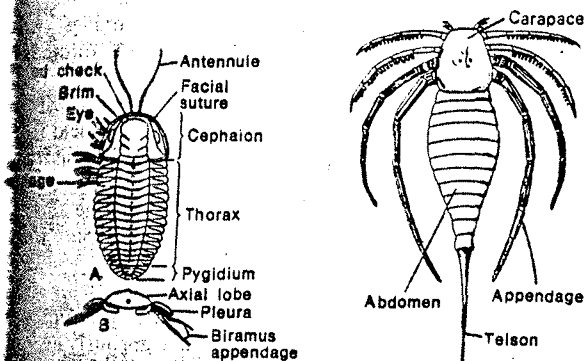
REFERENCE 32

Van Nostrand's SCIENTIFIC ENCYCLOPEDIA

Fifth Edition

...ve that social life in the insect world began as long ago as ...cene.

...e Paleontological point of view, however, the trilobites are ...interesting. These comprise an extinct group of arthropods, ...ely segmented invertebrates, with mouth and anus at the ...nds of an elongated body made up of a variable number of ...each of which bears a pair of appendages. The term trilo... ..."three-lobed," referring to the bilateral symmetry. The ...atomical features of the external skeleton are shown in ...Although one of the highest orders of the invertebrates, tri... ...ur among the oldest known fossils of the Cambrian period, ...extinct at the close of the Paleozoic Era. Trilobites are ...as index fossils, especially in the Cambrian, Ordovician, ...nd Devonian periods, and are of great aid to the geologist ...to determine the relative ages of the oldest fossiliferous ...of the geologic time-scale.



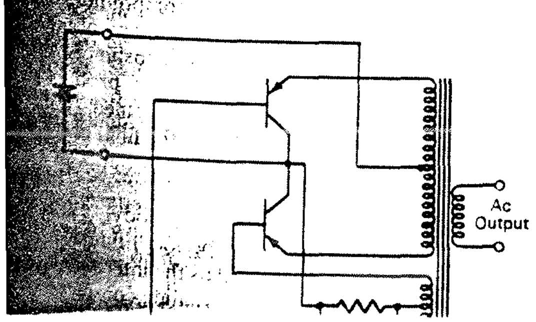
...agram at left is of the *Trilobite*: (A) dorsal view; (B) crosssection ...(*Field, Outline, Barnes & Noble*) Diagram at right is of the ...(*Schubert, Textbook of Geology, Wiley*)

...rids, meaning head-winged are extinct marine or estuarine ...anthropods, related to the horseshoe crab, with ...bodies, and appendages attached to the head region only. ...from the trilobites also in that the former always have a ...er of appendages. The Eurypterids range from the Cam... ...Permian, and are important index fossils in certain hori... ...Silurian and Devonian.

...D PLASTIC. **Colloid System.**

...D VOLTMETER. **Step-Down Amplifier.**

... A device for converting direct current into alternating ... term is commonly used to designate a circuit for per... ...function which employs either transistors or gas-filled ... See accompanying diagram. The inverter offers the ...generating power as alternating current, then stepping ...desired transmission voltage, rectifying it with high... ...ctifiers, transmitting as high-voltage direct current with ...ages, inverting it to alternating current at the receiving ...pping down to the normal distribution voltage by using ... Inverters using transistors operating from low-voltage batteries are used to power various types of electronic equipment in which high-voltage, low-current supplies are needed.



INVERTER CIRCUIT. **NOT (Circuit).**

INVERTER (Phase). **Phase Inverter.**

INVESTMENT CASTING. Also known as precision casting or the lost wax process. Patterns of wax or other expendable material are mounted on expendable sprues, and the assembly is invested or surrounded by a refractory slurry which sets and hardens at room temperature. The mold is then heated to melt and burn out the wax or other expendable material, following which molten metal is cast into the mold cavity. This casting process is particularly adapted to the production of small, intricate parts using metals of higher melting points than are feasible for use in die casting.

IN VITRO. An event or process occurring outside a living organism—in an unnatural environment, as in a test tube.

IN VIVO. An event of process occurring naturally or spontaneously within a living organism.

INVOLUCRUM FORMATION. **Bone.**

INVOLUNTARY NERVOUS SYSTEM. **Nerve and Nervous System.**

INVOLUTE. With reference to a curve, if the tangents to the curve C are normals to the curve C', then C' is an involute of C and C is an evolute of C'. With reference to a surface, take a singly-infinite system of geodesics on a surface S. At each point P or S draw the tangent to the geodesic of the family which passes through P. On this tangent, take a point Q such that the distance PQ is constant. Then the locus of Q is a surface S' which is called an involute of the surface S. The surface S is called the evolute of the surface S'.

INVOLUTION. **Square and Square Root.**

IODINE. Chemical element symbol I, at. no. 53, at. wt. 126.9044, periodic table group 7a (halogens), mp 113.5°C, bp 184.35°C, density 4.94 g/cm^3 (20°C). Iodine has an orthorhombic crystal structure. Solid iodine is a violet-to-black color; vapor is a beautiful violet color. The element sublimes readily and is easily purified in this way. Iodine is insoluble in H_2O, soluble in alcohol, ether, CS_2, or carbon tetrachloride. The element was first identified by Courtois in 1812 when making a study of kelp. There is one stable isotope ^{127}I and fourteen radioactive isotopes ^{122}I through ^{126}I and ^{128}I through ^{136}I. The lengths of half-lives of the isotopes vary widely, the shortest ^{136}I with a half-life of 86 seconds; the longest ^{129}I with a half-life of 1.72×10^7 years. See also **Radioactivity.** In terms of abundance in the crust of the earth, the element ranks 53rd and is about as plentiful as tin, antimony, cesium, and barium. Considerable quantities of iodine have concentrated in the oceans. The average iodine content of a cubic mile of seawater is 230 tons.

First ionization potential 10.44 eV; second, 19.4 eV. Oxidation potentials $I^- \rightarrow \frac{1}{2}I_2 + e^-$, -0.535 V; $I^- + H_2O \rightarrow HIO + H^+ + 2e^-$, -0.99 V; $I^- + 3H_2O \rightarrow IO_3^- + 6H^+ + 6e^-$, -1.085 V; $\frac{1}{2}I_2 + 3H_2O \rightarrow IO_3^- + 6H^+ + 5e^-$, -1.195 V; $\frac{1}{2}I_2 + H_2O \rightarrow HIO + H^+ + e^-$, -1.45 V; $IO_3^- + 3H_2O \rightarrow H_5IO_6 + H^+ + 2e^-$, ca. -1.7 V; $I^- + 6OH^- \rightarrow IO_3^- + 3H_2O + 6e^-$, -0.26 V; $I^- + 2OH^- \rightarrow IO^- + H_2O + 2e^-$, -0.49 V; $IO + 4OH^- \rightarrow IO_3^- + 2H_2O + 4e^-$, -0.56 V; $IO_3^- + 3OH^- \rightarrow H_3IO_6^{2-} + 2e^-$, ca. -0.70 V. Other important physical characteristics of iodine are given under **Chemical Elements.**

Sea plants, particularly kelp found in the waters around California and the Bay of Biscay, have been a source of iodine. Because of pollution, the kelp beds in California are no longer a major source. Iodine also is found in the petroleum oil well brine of California and, in small percentages, in sodium nitrate of Chile. The latter was once the primary source of the element. Brines now are the major source.

REFERENCE 33

0 15 30394 CIRCUITRONICS, INC.

* 30395 CONSOLIDATED CASTING CORP. *

GENERAL INFORMATION:

CONSOLIDATED CASTING CORP.
P.O. BOX 29242
DALLAS TX 75229

RECORD TYPE: GENERATOR
REPORT FREQUENCY:
REGISTRATION DATE: 04-01-76
LAST CHANGE DATE: 05-29-87
EMPLOYEE GROUP: GREATER THAN 100
STATUS: INACTIVE
EPA ID NUMBER: TXD980626027
STAFF: NFV
HAZ WASTE STATUS: GENERATOR/TRANSPORTER
METHOD TRANSPORT:

CONTACT: JOE HULL
PHONE: 214-241-2161
BASIN: 08 TRINITY RIVER
SEGMENT: 0805
DISTRICT: 04
REGION:
COUNTY: 057 DALLAS
WCO:

GENERATING SITE LOCATION: 2425 CAROLINE ST, DALLAS, TX

DESCRIPTION OF WASTE GENERATING ACTIVITIES:

SEQ	SIC CODE	DESCRIPTION OF INDUSTRIAL ACTIVITES
01	3324	STEEL INVESTMENT FOUNDRIES
~~02~~	~~3361~~	~~ALUMINUM FOUNDRIES~~
~~03~~	~~3362~~	~~BRASS, BRONZE, AND COPPER FOUNDRIES~~
~~04~~	~~3369~~	~~NONFERROUS FOUNDRIES, NEC~~

SOLID WASTE GENERATION SUMMARY:

SEQ	WCC	WASTE DESCRIPTION AND DISPOSITION	CLASS	FORM
001	280560	TRASH, MISC. COMBUSTIBLE OFF-SITE	II	SOLID (PREDOMINANTLY ORGANIC)
002	370230	SLAG, IRON OXIDE SECONDARY USE	III	SOLID (PREDOMINANTLY INORGANIC)
003	110580	WAX ETHCHING SOLUTION NO LONGER GENERATED	I	LIQUID (NON-WATER BASE)
004	370730	CERAMIC SCRAP OFF-SITE	III	SOLID (PREDOMINANTLY INORGANIC)
005	370330	METAL, IRON SCRAP SECONDARY USE	III	SOLID (PREDOMINANTLY INORGANIC)
006	900060	ACID, HYDROCHLORIC (HCL) EPA NOS: D002 NO LONGER GENERATED	IH	LIQUID (WATER BASE)
007	943210	SODIUM HYDROXIDE SLUDGE EPA NOS: D002 ON-SITE/OFF-SITE	IH	SLUDGE (WATER BASE)
008	104050	ACIDIC AND CAUSTIC WASTE, NEUTRALIZED ON-SITE/SANITARY SEWER	I	LIQUID (WATER BASE)

HAZARDOUS WASTE DESCRIPTION		IGNIT	CORR	EP TOX	REACT	ACUTE	TOX
				HAZARD CODES			
D002	CORROSIVE WASTE		X				

P 15 30395 CONSOLIDATED CASTING CORP.

SOS
OENCE: REGISTRATION NUMBER

*** TEXAS WATER COMMISSION ***
INDUSTRIAL SOLID WASTE SYSTEM
REGISTRATION
FULL RECORD REPORT

PAGE 3442
DATE 02/02/93

30395 CONSOLIDATED CASTING CORP. (CONT)
SOLID WASTE GENERATION SUMMARY (CONT):

SOLID WASTE MANAGEMENT FACILITIES SUMMARY:
SEQ DESCRIPTION AND STATUS

01 CONTAINER STORAGE AREA
ACTIVE

LATITUDE: CAPACITY:
LONGITUDE: ELEVATION:
SURFACE AREA:
DATE OPENED:
DATE INACTIVE:
DATE CLOSED:
SUBJECT TO PERMIT:
DEED REQUIRED: DATE RECORDED:

FACILITY USE: STORAGE
007 IH SODIUM HYDROXIDE SLUDGE
008 I ACIDIC AND CAUSTIC WASTE, NEUTRALIZED
FACILITY DESCRIPTION:

02 TANK (SURFACE)
INACTIVE

LATITUDE: CAPACITY:
LONGITUDE: ELEVATION:
SURFACE AREA:
DATE OPENED:
DATE INACTIVE: 02-86
DATE CLOSED:
SUBJECT TO PERMIT:
DEED REQUIRED: DATE RECORDED:

FACILITY USE: STORAGE/PROCESSING
006 IH ACID, HYDROCHLORIC (HCL)
008 I ACIDIC AND CAUSTIC WASTE, NEUTRALIZED
FACILITY DESCRIPTION: NEUTRALIZATION

16

CE: REGISTRATION NUMBER

*** TEXAS WATER COMMISSION ***
INDUSTRIAL SOLID WASTE SYSTEM
REGISTRATION
FULL RECORD REPORT

PAGE 3443
DATE 02/02/93

****
) CONTAINER CORP. OF AMERICA *
****

...L INFORMATION:
CONTAINER CORP. OF AMERICA RECORD TYPE: GENERATOR CONTACT: DARLENE THOMPSON
ARLINGTON PLANT REPORT FREQUENCY: M